HD1761
G6
#163

C-1

Division of Agricultural Sciences
UNIVERSITY OF CALIFORNIA

THE MARKET FOR UNITED STATES RICE: FOREIGN

G. L. Mehren and Nicholas Thuroczy

UNIVERSITY OF CALIFORNIA
DAVIS
NOV 15 1954
LIBRARY

CALIFORNIA AGRICULTURAL EXPERIMENT STATION
GIANNINI FOUNDATION OF AGRICULTURAL ECONOMICS

Mimeographed Report No. 163 March 1954

Do this last

SUMMARY

This second report on the market for United States rice includes an analysis of world rice demand, appraisal of the long-run outlook for exports from the United States, a similar evaluation of immediate outlook, calculation of the impact of alternative pricing policies upon farm income, and appraisal of the interrelationships of domestic price policy and exports. A first report analyzed the major determinants of variations in price and utilization of United States rice.

Steady decline over three decades in world per-capita production, per-capita disappearance, and per-capita trade suggests the possibility of a declining demand for rice. Statistical analysis of world demand for the years 1922-1938 led to three conclusions: (1) world demand was inelastic--a given percentage increase in world supply, with no change in Asiatic buying power, was on the average associated with a greater percentage decline in world price; (2) world price is inelastic with respect to Asiatic purchasing power--a given percentage increase in such buying power, with no change in world supply, was on the average associated with a smaller percentage rise in world price; and (3) world demand has trended downward--with no change in buying power, the price obtained for a given world supply declined over the years under study. It is impossible to apply such analyses to current world data or to predict whether apparent interwar year demand relationships will reappear. Postwar world trade is only a little more than half its prewar volume. The relative status of both importing and exporting nations has changed greatly from prewar relationships. Analysis of the determinants of these changes is relevant to appraisal of the long-run and the immediate export outlook for United States rice.

Changes in volume and distribution of the world rice trade are unrelated to the fairly stable yields per acre in rice nations. Total production is generally well above prewar levels. Except for Thailand, postwar production has been down in export nations of Asia relative to the world as a whole. Despite increased total production, apparent per-capita production in Asiatic nations has declined at a faster rate than per-capita disappearance. The disparity in these two rates of fall has apparently created a long-run potential for sales of rice in Asia from non-Asiatic nations. However, there is a long-run prospect of easier export supplies in Asiatic export nations and, therefore, prospect of some decline in world prices from the emergency levels of the postwar years. Further, there is evidence that many Asiatic nations have maintained dollar exchange positions through unusual sources of financing which are diminishing in magnitude. Thus, over the long run, the following conclusions appear to be justified: (1) there is an export potential for non-Asiatic rice in Asiatic markets, primarily Japan, but at price levels lower than those now prevailing and perhaps at levels which will reflect on the United States farm a lower average price than that which can be obtained through present support-price programs; (2) inquiry should, therefore, be made into the possible impact of support-price methods upon export trade if world price should decline; and (3) Asiatic markets have been generally deficit in terms of dollar trade balance, and, therefore, methods of restoring dollar purchasing power should be investigated.

SUMMARY

This second report on the market for United States rice includes an analysis of world rice demand, appraisal of the long-run outlook for exports from the United States, a similar evaluation of immediate outlook, calculation of the impact of alternative pricing policies upon farm income, and appraisal of the interrelationships of domestic price policy and exports. A first report analyzed the major determinants of variations in price and utilization of United States rice.

Steady decline over three decades in world per-capita production, per-capita disappearance, and per-capita trade suggests the possibility of a declining demand for rice. Statistical analysis of world demand for the years 1922-1938 led to three conclusions: (1) world demand was inelastic--a given percentage increase in world supply, with no change in Asiatic buying power, was on the average associated with a greater percentage decline in world price; (2) world price is inelastic with respect to Asiatic purchasing power--a given percentage increase in such buying power, with no change in world supply, was on the average associated with a smaller percentage rise in world price; and (3) world demand has trended downward--with no change in buying power, the price obtained for a given world supply declined over the years under study. It is impossible to apply such analyses to current world data or to predict whether apparent interwar year demand relationships will reappear. Postwar world trade is only a little more than half the prewar volume. The relative status of both importing and exporting nations has changed greatly from prewar relationships. Analysis of the determinants of these changes is relevant to appraisal of the long-run and the immediate export outlook for United States rice.

Changes in volume and distribution of the world rice trade are unrelated to the fairly stable yields per acre in rice nations. Total production is generally well above prewar levels. Except for Thailand, postwar production has been down in export nations of Asia relative to the world as a whole. Despite increased total production, apparent per-capita production in Asiatic nations has declined at a faster rate than per-capita disappearance. The disparity in these two rates of fall has apparently created a long-run potential for sales of rice in Asia from non-Asiatic nations. However, there is a long-run prospect of easier export supplies in Asiatic export nations and therefore, prospect of some decline in world prices from the emergency levels of the postwar years. Further, there is evidence that many Asiatic nations have maintained dollar exchange positions through unusual sources of financing which are diminishing in magnitude. Thus, over the long run, the following conclusions appear to be justified: (1) there is an export potential for non-Asiatic rice in Asiatic markets, primarily Japan, but at price levels lower than those now prevailing and perhaps at levels which will reflect on the United States farm a lower average price than that which can be obtained through present export-price programs; (2) inquiry should, therefore, be made into the possible impact of export-price methods upon export trade if world price should decline; and (3) Asiatic markets have been generally deficit in terms of dollar trade balance, and, therefore, methods of restoring dollar purchasing power should be investigated.

Analysis of the immediate outlook for United States exports leads to substantially the same conclusions. Reported export surpluses in Asia are significantly higher than in any postwar year and total world exports are beginning to approximate prewar levels. Some decline in world prices, therefore, appears likely. It is not impossible that a relatively minor decline in world prices could reduce the reflected export price at the United States farm sufficiently below the current price-support level to induce heavy storage to government account and the possible application of quotas to subsequent United States crops. Export outlets in Canada and Cuba appear stable and no drastic change in domestic-territorial demands appears imminent. Of the Asiatic nations to which American rice has been exported since the war, the major potential appears to be in Japan. Efforts are being made in that nation to substitute wheat and barley, partly financed by United States funds, for imported rice. In the face of increased world export surpluses, two issues are dominant with respect to the immediate market in Asia: (1) possible decline in world prices, and (2) difficulty in maintaining dollar exchange in the face of continuously unfavorable trading balances with the United States and declining extraordinary expenditures by the United States in Asia.

Analysis indicates that a system of multiple pricing would have increased returns to American rice producers over the last three decades. Such a system would involve limitation of sales in domestic-territorial channels, and perhaps in Cuba, with sale of the remainder of the United States rice supply in world markets at world prices without shading the world price and without export subsidies. Such pricing would probably avoid creation of domestic surpluses under price support and would further be consistent with maintenance of the industry at or near its present volume of production. However, possibility of changes in the present support-price system seems remote. Legal and administrative difficulties, possible adverse reactions from foreign nations, and the possible necessity to extend such pricing methods to American products less suited than rice to multiple pricing are cited as reasons.

Thus, the long-run issues appear to be the degree to which the apparent long-run per-capita deficit in Asiatic rice supplies can be met by United States exports at world prices in the face of a domestic support-price system which may hold United States farm prices above world prices. Further, if exports are to be maintained, there must be some method by which dollar earnings of importers can be maintained.

Analysis of the immediate outlook for United States exports leads to substantially the same conclusions. Reported export surpluses in Asia are significantly higher than in any postwar year and total world exports are beginning to approximate prewar levels. Some declines in world prices, therefore, appears likely. It is not impossible that a relatively minor decline in world prices could reduce the reflected export price at the United States farm sufficiently below the current price-support level to induce heavy storage to government account and the possible application of quotas to subsequent United States crops. Export outlets in Canada and Cuba appear stable and no drastic change in domestic-territorial demands appears imminent. Of the Asiatic nations to which American rice has been exported since the war, the major potential appears to be in Japan. Efforts are being made in that nation to substitute wheat and barley, partly financed by United States funds, for imported rice. In the face of increased world export surpluses, two issues are dominant with respect to the immediate market in Asia: (1) possible decline in world prices, and (2) difficulty in maintaining dollar exchange in the face of continuously unfavorable trading balances with the United States and declining extraordinary expenditures by the United States in Asia.

Analysis indicates that a system of multiple pricing would have increased returns to American rice producers over the last three decades. Such a system would involve limitation of sales in domestic-territorial channels, and perhaps in Cuba, with sale of the remainder of the United States rice supply in world markets at world prices without altering the world price and without export subsidies. Such pricing would probably avoid cessation of domestic surpluses under price support and would further be consistent with maintenance of the industry at or near its present volume of production. However, possibility of changes in the present support-price system seems remote. Legal and administrative difficulties, possible adverse reactions from foreign nations, and the possible necessity to extend such pricing methods to American products less suited than rice to multiple pricing are cited as reasons.

Thus, the long-run issues appear to be the degree to which the apparent long-run net-capita deficit in Asiatic rice supplies can be met by United States exports at world prices in the face of a domestic support-price system which may hold United States farm prices above world prices. Further, if exports are to be maintained, there must be some method by which dollar earnings of importers can be maintained.

TABLE OF CONTENTS

	Page
World Demand for Rice	1
United States-World Price Equalization	1
Interwar Relationships	2
World Market Data	2
Demand Equations	7
Long-Run Outlook for Exports	10
Production	10
Per-Capita Production and Disappearance	18
Exports and Imports	24
Prices	42
Export Outlets for United States Rice	42
1954 Outlook	46
Supplies	46
Government Controls	53
1954 Demand in Importing Nations	55
The Japanese Market	57
The Indonesian Market	64
The Ceylonese Market	65
Price Policy	66
Support and Control History	66
Multiple Pricing	68

FIGURES

1.	United States Rice: Equalization of Average Annual On-Farm Price from Domestic and World Outlets, with United States Exports a Small Proportion of Total World Trade	1
2.	World Rice: Yield Per Acre, Rough Basis, Selected Nations, 1934-1938 Average and 1949-1953 Annual	12
3.	World Rice: Production, Rough Basis, Selected Nations, 1934-1938 Average and 1949-1953 Annual	13
4.	World Rice: World, Asiatic, Eleven Asiatic Nations, China, India, and United States Production, Rough Basis, 1934-1938 Average and 1949-1953 Annual	14
5.	World Rice: Percentage of World Production, Total Asiatic, Eleven Asiatic Nations, China, and India, 1935-1939 Average and 1949-1953 Annual	16
6.	World Rice: Percentage of World Production by Nations, 1935-1939 Average and 1949-1953 Annual	17
7.	World Rice: Per-Capita Production, Rough Basis, Selected Nations, 1935-1939 Average and 1949-1952 Annual	19
8.	World Rice: Apparent Disappearance, Rough Basis, Selected Nations, 1935-1939 Average and 1949-1952 Annual	22
9.	World Rice: Apparent Per-Capita Disappearance, Rough Basis, Selected Nations, 1935-1939 Average and 1949-1952 Annual	23
10.	World Rice: Net Exports, Rough Basis, Selected Nations, 1935-1939 Average and 1949-1952 Annual	26
11.	World Rice: Asiatic Exports, Imports, and Trade Balances, Rough Basis, 1935-1939 Average and 1949-1952 Annual	27

TABLE OF CONTENTS

Page

World Demand for Rice 1
United States-World Price Equilibrium 1
Interyear Relationships 2
World Market Data 2
Demand Equations 7
Long-Run Outlook for Exports 10
Production 10
Per-Capita Production and Disappearance 18
Exports and Imports 24
Prices 42
Export Outlets for United States Rice 42
1958 Outlook 46
Supplies 46
Government Controls 52
1958 Demand in Importing Nations 55
The Japanese Market 57
The Indonesian Market 61
The Ceylonese Market 65
Price Policy 66
Support and Control History 66
Multiple Pricing 68

FIGURES

1. United States Rice: Equalization of Average Annual On-Farm Prices from Domestic and World Outlets, with United States Exports a Small Proportion of Total World Trade 1
2. World Rice: Yield Per Acre, Rough Basis, Selected Nations, 1934-1938 Average and 1949-1953 Annual 12
3. World Rice: Production, Rough Basis, Selected Nations, 1934-1938 Average and 1949-1953 Annual 13
4. World Rice: World, Asiatic, Eleven Asiatic Nations, China, India, and United States Production, Rough Basis, 1934-1938 Average and 1949-1953 Annual 14
5. World Rice: Percentage of World Production, Total Asiatic, Eleven Asiatic Nations, China, and India, 1935-1939 Average and 1949-1953 Annual 16
6. World Rice: Percentage of World Production by Nations, 1935-1939 Average and 1949-1953 Annual 17
7. World Rice: Per-Capita Production, Rough Basis, Selected Nations, 1935-1939 Average and 1949-1952 Annual 19
8. World Rice: Apparent Disappearance, Rough Basis, Selected Nations, 1935-1939 Average and 1949-1952 Annual 22
9. World Rice: Apparent Per-Capita Disappearance, Rough Basis, Selected Nations, 1935-1939 Average and 1949-1952 Annual 23
10. World Rice: Net Exports, Rough Basis, Selected Nations, 1935-1939 Average and 1949-1952 Annual 26
11. World Rice: Asiatic Exports, Imports, and Trade Balances, Rough Basis, 1935-1939 Average and 1949-1952 Annual 27

FIGURES

		Page
12.	World Rice: Net Imports, Rough Basis, Selected Nations, 1935-1939 Average and 1949-1952 Annual	28
13.	World Rice: Percentage of Annual World Net Exports by Countries, 1935-1939 Average and 1949-1952 Annual	32
14.	World Rice: Percentage of Annual World Net Imports by Countries, Rough Basis, 1935-1939 Average and 1949-1952 Annual	33
15.	World Rice: Apparent Production Minus Apparent Disappearance, Major Export Nations, 1935-1939 Average and 1949-1953 Annual	35
16.	Asiatic Rice: Production, Apparent Disappearance, and Nominal Import Deficits, Asiatic Nations, 1935-1939 Average and 1949-1952 Annual	36
17.	World Rice: Annual Production Minus Annual Apparent Disappearance, Rough Basis, Major Asiatic Nations and United States, 1935-1939 Average and 1949-1952 Annual	38
18.	World Rice: Per-Capita Export Surpluses, Rough Basis, Burma, Indochina, and Thailand, 1935-1939 Average and 1949-1952 Annual	39
19.	World Rice: Per-Capita Import Deficits, Rough Basis, Japan, Indonesia, India, and Ceylon, 1935-1939 Average and 1949-1952 Annual	40
20.	World Rice: Apparent Per-Capita Production Minus Per-Capita Disappearance, Rough Basis, Major Asiatic Nations, 1935-1939 Average and 1949-1952 Annual	41
21.	World Rice: Average Annual Prices Per Metric Ton in United States Dollars, 1934-1941 and 1946-1952	45
22.	United States Rice: Exports by Destination, Milled Basis, 1946-1952	47
23.	World Rice: Production by Principal World Areas, 1935-1939 and 1945-1949 Averages and 1951-1953 Annual	50
24.	World Rice: Exports from Principal World Areas, 1936-1940 and 1946-1950 Averages and 1952-1953 Annual Estimates and Estimated Export Surpluses, 1954	52
25.	United States Rice: Distribution of Total Farm Supply Between Domestic-Territorial and Export Outlets	73
26.	United States Rice: Distribution of Farm Supply Between Domestic-Territorial and Export Outlets, Assuming World Price is Affected by United States Exports	77

TABLES

1.	World Rice: Production in Ten Asiatic Nations, United States, and Other Nations Excluding China Prior to 1930, Rough Basis	3
2.	World Rice: Annual Production, Ten Asiatic Nations, Rough Basis, 1920-1953	4
3.	World Rice: World Production, Excluding China, and Per-Capita Production in Ten Asiatic Nations, 1921-1924 Average, Five-Year Averages 1925-1939, and 1949-1951 Average, Rough Basis	6
4.	World Rice: Factors Affecting Annual Average London Price, Milled Basis, 1922-1938	8
5.	World Rice: Yield Per Acre and Production, Selected Nations, Rough Basis, 1934-1938 Average and 1949-1953 Annual	11

FIGURES

Page

12. World Rice: Net Imports, Rough Basis, Selected Nations, 1935-1939 Average and 1949-1952 Annual 28

13. World Rice: Percentage of Annual World Net Imports by Countries, 1935-1939 Average and 1949-1952 Annual 32

14. World Rice: Percentage of Annual World Net Imports by Countries, Rough Basis, 1935-1939 Average and 1949-1952 Annual . . . 33

15. World Rice: Apparent Production Minus Apparent Disappearance, Major Export Nations, 1935-1939 Average and 1949-1952 Annual 34

16. Asiatic Rice: Production, Apparent Disappearance, and Normal Import Deficits, Asiatic Nations, 1935-1939 Average and 1949-1952 Annual 36

17. World Rice: Annual Production Minus Annual Apparent Disappearance, Rough Basis, Major Asiatic Nations and United States, 1935-1939 Average and 1949-1952 Annual 38

18. World Rice: Per-Capita Export Surpluses, Rough Basis, Burma, Indochina, and Thailand, 1935-1939 Average and 1949-1952 Annual 39

19. World Rice: Per-Capita Import Deficits, Rough Basis, Japan, Indonesia, India, and Ceylon, 1935-1939 Average and 1949-1952 Annual 40

20. World Rice: Apparent Per-Capita Production Minus Per-Capita Disappearance, Rough Basis, Major Asiatic Nations, 1935-1939 Average and 1949-1952 Annual 41

21. World Rice: Average Annual Prices Per Metric Ton in United States Dollars, 1931-1941 and 1946-1952 45

22. United States Rice: Exports by Destination, Milled Basis, 1946-1952 47

23. World Rice: Production by Principal World Areas, 1935-1939 and 1949-1953 Average and 1953 Annual 50

24. World Rice: Exports from Principal World Areas, 1936-1940 and 1946-1950 Average and 1952-1953 Annual Estimates and Estimated Export Surpluses, 1953 52

25. United States Rice: Distribution of Total Farm Supply Between Domestic-Territorial and Export Outlets 73

26. United States Rice: Distribution of Farm Supply Between Domestic-Territorial and Export Outlets, Assuming World Price is Affected by United States Exports 77

TABLES

1. World Rice: Production in Ten Asiatic Nations, United States, and Other Nations Excluding China Prior to 1950, Rough Basis 3

2. World Rice: Annual Production, Ten Asiatic Nations, Rough Basis, 1950-1953 5

3. World Rice: World Production, Excluding China, and Per-Capita Production in Ten Asiatic Nations, 1921-1925 Average, Five-Year Averages 1925-1939, and 1949-1951 Average, Rough Basis 6

4. World Rice: Factors Affecting Annual Average London Price, Milled Basis, 1922-1938 8

5. World Rice: Yield Per Acre and Production, Selected Nations, Rough Basis, 1934-1938 Average and 1949-1953 Annual 11

TABLES

		Page
6.	World Rice: Percentage of World Production and Per-Capita Production, Asiatic Nations and United States, Rough Basis, 1935-1939 Average and 1949-1953 Annual	15
7.	World Rice: Apparent Disappearance and Apparent Per-Capita Disappearance, Selected Nations, Rough Basis, 1935-1939 Average and 1949-1953 Annual	21
8.	World Rice: Net Exports and Net Imports, Selected Nations, Rough Basis, 1935-1939 Average and 1949-1952 Annual	25
9.	World Rice: Percentage of Net World Exports and Net World Imports, Selected Nations, Rough Basis, 1935-1939 Average and 1949-1952 Annual	31
10.	World Rice: Regional Trade as Percentages of World Production, Average 1935-1939 and Annual 1949-1952	34
11.	World Rice: Prices, Selected Nations, 1934-1951	43
12.	World Rice: Production by Principal World Areas, Milled Basis, 1935-1939 and 1945-1949 Averages and 1951-1953 Annual	49
13.	World Rice: Exports in Principal World Areas, Milled Basis, 1936-1940 and 1946-1950 Averages, 1952 Annual, 1953 Estimates, and 1954 Export Supplies	51
14.	Japanese Rice: Value of Merchandise Imports and Exports and Balance of Merchandise Trade, 1945-1953	58
15.	United States Rice: Government Price-Support and Acreage-Control Programs	67
16.	United States Rice: Average Annual On-Farm Price, Total Annual Farm Supply Minus Total Exports, and Coefficient of Demand Elasticity, Rough Basis, 1921-1952, Excluding 1942-1945 and 1951	69
17.	United States Rice: Differences in Farm Price and Value of Crop With and Without Maximum Return Discrimination of Domestic and Export Markets, Rough Basis, 1921-1952, Excluding 1942-1945, Inclusive, and 1951	71
18.	United States Rice: Differences in Farm Price and Value of Crop With and Without Maximum Return Discrimination of Domestic and Export Markets, Rough Basis, 1921-1952, Excluding 1942-1945, Inclusive, and 1951	75

Page

6. [illegible] Chronology of early Investiture and Re-Conquista
[illegible] Sancho Ramirez and Peter of Aragon, Kings Italia,
[illegible] Pedro and [illegible] Jaime 12

7. Jaime Alone. Conquests and Expansion Re-Unification
[illegible] Balearic Islands, Murcia Kingdom,
[illegible] Jaime Pedro and [illegible] Jaime 21

8. Jaime Alone. The Crusade and the Struggle Against Islam,
Pedro [illegible] Alfonso Pedro and [illegible] Jaime 27

9. Jaime Alone. Organization of his Realm Compared and Its Social
Aspects, Balearic Kingdom, Murcia Kingdom,
[illegible] Pedro and [illegible] Jaime 33

10. Jaime Alone. Organization of Aragon Proper and Its Social
Aspects, Balearic Kingdom, Murcia Kingdom,
[illegible] Pedro and [illegible] Jaime 39

11. Jaime Alone. Internal Strife in Aragon Proper,
Pedro [illegible] Alfonso and Jaime 45

12. Jaime Alone. Relations with Castile and Navarre,
Pedro [illegible] Alfonso and Jaime 49

13. Jaime Alone. Relations with Papacy and Empire, Italian Affairs,
Pedro [illegible] Alfonso and Jaime 53

14. Jaime Alone. Conquests in Southern Spain and Their Results,
[illegible] and Jaime 57

15. Jaime Alone. Expansion in Italy, Relations with Papacy and Empire,
Pedro [illegible] Alfonso and Jaime 61

16. Jaime Alone. Relations with Castile and Navarre,
Pedro [illegible] Alfonso and Jaime 67

17. Jaime Alone. Internal Strife in Aragon Proper,
Pedro [illegible] Alfonso and Jaime 71

18. Jaime Alone. Organization of Aragon Proper and Its Social
Aspects, Balearic Kingdom, Murcia Kingdom,
[illegible] Pedro and [illegible] Jaime 77

19. Jaime Alone. Organization of his Realm Compared and Its Social
Aspects, Balearic Kingdom, Murcia Kingdom,
[illegible] Pedro and [illegible] Jaime 83

20. Jaime Alone. The Crusade and the Struggle Against Islam,
Pedro [illegible] Alfonso and Jaime 89

21. Jaime Alone. Conquests and Expansion Re-Unification
[illegible] Balearic Islands, Murcia Kingdom,
[illegible] Pedro and [illegible] Jaime 95

22. Jaime Alone. Chronology of early Investiture and Re-Conquista
[illegible] Sancho Ramirez and Peter of Aragon, Kings Italia,
[illegible] Pedro and [illegible] Jaime 101

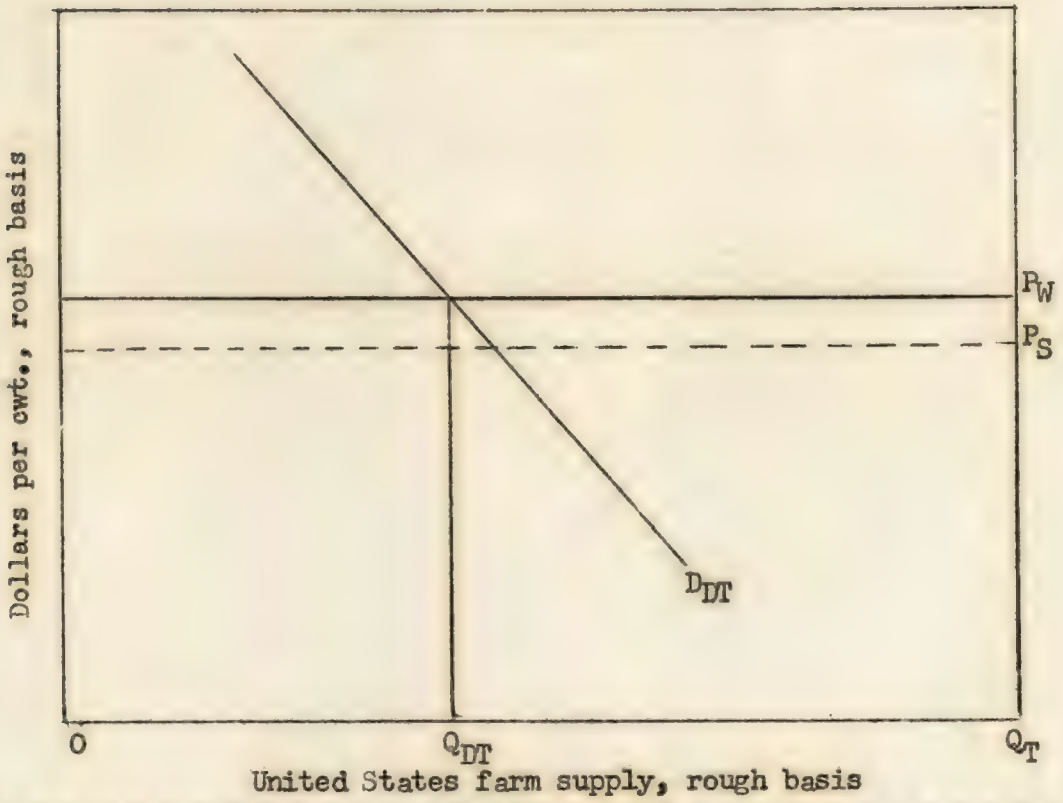
THE MARKET FOR UNITED STATES RICE: FOREIGN

World Demand for Rice

United States-World Price Equalization.--During the interwar years, United States average annual on-farm prices for rice were the same in alternative outlets. The mechanism for equalizing world and domestic prices is indicated in Figure 1, in which D_{DT} represents the on-farm demand for rice, rough basis, in domestic and territorial channels and P_W represents the on-farm average price and demand function for United States exports in world outlets.1/ The domestic-territorial demand was much the lower in elasticity. With these conditions, price would be equalized in domestic-territorial and export outlets given the following two conditions: (1) the total supply, Q_T, in Figure 1 equals or exceeds the quantity, Q_{DT}, and (2) the reflected world price at the United States farm level exceeds the support price shown in Figure 1 as P_S.

FIGURE 1

United States Rice: Equalization of Average Annual On-Farm Price from Domestic and World Outlets, with United States Exports a Small Proportion of Total World Trade



1/ This assumes that the on-farm elasticity of export demand was infinitely large. This assumption is not applicable to the last few years. The equalization of domestic-export-territorial returns per hundredweight at the farm level is not affected by lower demand elasticity in world outlets.

With these conditions, handlers would divert sales into the domestic-territorial channel only so long as the average on-farm price from that outlet exceeded the world price. With the conditions assumed in Figure 1, sale of more than the amount OQ_{DT} in domestic-territorial outlets would reduce farm price below the reflected farm price from export sales. The equilibrium result would be price equalization. The level of world price and the determinants thereof are of crucial importance to growers. The distribution of a given total United States supply of rice is effectively determined by the relative levels and elasticities of the two demand functions--domestic-territorial and world, both reflected at the United States farm. Were the world price reflected at the United States farm to fall below the support level, heavy diversion to support storage would follow. For these reasons, variations in world price were analyzed.

Interwar Relationships.--There are three major objectives in the world demand study: (1) estimates of world price of rice from known values of related variables, (2) measurement of the net effect upon world price of changes in any one of its determinants, and (3) measurement of the net change in world demand over time. Analysis was limited to 1922-1938 because continuous data could be obtained; governmental intervention in production, distribution, and pricing was relatively minor; and exchange control was less stringent, at least until 1932, than in subsequent years. However, generality and reliability of the results are limited by peculiarities of the interwar data.

World demand apparently shifted during World War II and subsequent years. The possibility of recurrence of interwar world demand cannot be appraised quantitatively. The United States exported a negligible percentage of world trade in the interwar period. In recent years, the United States has been a major exporter. The United States supply greatly exceeds the magnitude which, if sold in domestic-territorial channels, would yield a farm price equal to the average now obtained from both export and domestic-territorial sales. Long-run declines in per-capita production, disappearance, and trade in many areas suggest the possibility of a long-run decline in the level of world demand. Its significance to United States producers is obvious. The testing of this hypothesis is a major purpose of the world price analysis.

World Market Data.--Basic data for the interwar years are shown in Table 1. Approximately 95 per cent of world production and trade was in Asiatic areas. Production in ten Asiatic nations accounted for approximately 95 per cent of Asian output, exclusive of China. Data for China were unavailable prior to 1930 and inadequate thereafter. Chinese production is estimated to have comprised 30 per cent of world output but made little direct impact upon world trade. There was a gradual uptrend in total world production prior to World War II. However, there was a steady decline in per-capita production in the ten Asiatic nations from approximately 344 pounds per person per year in 1921-1924 to 300 pounds in 1935-1939 and to 283 pounds in 1949-1951. These trends are shown in Tables 2 and 3.2/ The increase in aggregate world output for 1949-1951 over 1935-1939 is partly attributable to increased acreage in the United States, Brazil, and Egypt. Thailand is the single Asiatic nation in which postwar production has been consistently higher than prewar levels.

Year-to-year variation in output of individual nations was relatively greater than year-to-year variations in aggregate Asiatic output. Weather changes appear to have been a major determinant of such variations. Little net export trade originated from non-Asiatic countries during the interwar years.

2/ The rate of decline has diminished since 1939.

2/ The rate of decline has diminished since 1929.

TABLE 1

World Rice: Production in Ten Asiatic Nations, United States, and Other Nations Excluding China Prior to 1930, Rough Basis

Year[a]	Ten Asiatic nations[b]	United States	Others, excluding China	Estimated world total, excluding China	China[c]
	1,000,000 quintals				
1921	812.8	8.5	40.7	862.0	[d]
1922	841.1	6.9	32.0	880.0	
1923	745.5	6.8	36.7	789.0	
1924	798.6	6.6	57.6	862.8	
1925	797.7	6.8	51.5	856.0	
1926	791.6	8.5	52.3	852.4	
1927	784.9	9.1	51.8	845.8	
1928	819.3	8.9	47.7	875.9	
1929	795.5	8.3	55.3	859.1	
1930	843.0	9.2	59.4	911.6	
1931	818.8	9.2	58.7	886.7	546.4
1932	820.1	8.2	60.7	889.0	621.9
1933	837.2	7.6	59.2	904.0	608.3
1934	784.1	8.0	66.3	858.4	489.5
1935	773.4	8.1	70.9	852.4	602.3
1936	834.1	10.2	94.1	938.4	602.0
1937	861.2	10.9	71.5	943.6	656.2
1938	831.3	10.7	72.0	914.0	679.3
1939	819.7	10.7	85.6	916.0	628.5
1946	777.1	14.7	151.2	943.0	460.0
1947	805.9	15.9	155.2	977.0	469.5
1948	917.8	17.4	123.8	1,059.0	481.3
1949	906.7	18.5	159.8	1,085.0	445.0
1950	855.2	17.6	169.2	1,042.0	467.0
1951	856.0	20.8	168.2	1,045.0	483.0

a/ Annual production harvested mostly in November and December.
b/ Burma, Formosa, India, Indonesia, Indochina, Japan, Korea, Pakistan, Philippines, and Thailand.
c/ Estimates from two different sources: For 1931-1939: American Consul General, Shanghai. U.S. Department of Agriculture. Agricultural Statistics, 1942, p. 42. For 1946-1951: Food and Agriculture Organization of the United Nations. Yearbook of Food and Agricultural Statistics.
d/ Blanks indicate data not available.

Sources: For 1921-1939: International Institute of Agriculture. International Yearbook of Agricultural Statistics, yearly issues. For 1946-1951: Food and Agriculture Organization of the United Nations. Yearbook of Food and Agricultural Statistics--Production, yearly issues.

TABLE 2

World Rice: Annual Production, Ten Asiatic Nations, Rough Basis, 1920-1953

Year	Burma	India and Pakistan	Indochina	Indonesia	Japan	Korea[a]	Philippines	Taiwan	Thailand	Total production	Population[b]	Per-capita production[c]	Annual average per-capita production[d]
	1,000,000 quintals										1,000,000	kilograms	
1920	[e]	432.8	46.2	46.0	114.3	26.9	15.8	8.8	42.8	733.6			
1921		518.9	58.3	40.5	99.8	25.9	18.1	9.0	42.3	812.8	501.5	162.1	
1922		527.6	58.0	46.4	109.8	27.2	18.9	9.8	43.4	841.1	509.1	165.2	
1923		441.2	53.0	51.4	100.3	27.4	19.1	8.8	44.3	745.5	515.1	144.7	156.3
1924		486.2	57.3	48.9	103.4	23.9	18.1	11.0	49.8	798.6	520.9	153.3	
1925		479.4	57.6	52.4	108.0	26.7	19.6	11.7	42.3	797.7	527.7	151.2	
1926		464.4	60.7	52.6	100.5	27.7	21.8	11.2	52.7	791.6	533.6	148.3	
1927		441.8	64.9	54.1	112.3	31.3	22.0	12.5	46.0	784.9	540.3	145.3	147.7
1928		502.9	57.5	52.2	109.0	24.4	21.9	12.3	39.1	819.3	546.0	150.1	
1929	76.1	398.9	59.4	54.8	107.7	24.8	22.7	11.7	39.4	795.5	553.4	143.7	
1930	78.5	412.8	59.8	52.6	120.9	34.7	21.8	13.3	48.6	843.0	561.0	150.3	
1931	63.8	439.4	56.1	55.7	99.9	28.7	20.8	13.4	41.0	818.8	566.0	144.7	
1932	74.8	399.7	57.9	56.5	112.1	30.3	21.0	16.6	51.2	820.1	572.3	143.3	143.4
1933	79.0	392.6	58.3	53.1	131.5	33.8	23.3	15.5	50.1	837.2	578.5	144.7	
1934	69.1	392.2	55.1	57.6	96.2	31.0	20.0	16.9	46.0	784.1	584.6	134.1	
1935	76.5	354.1	60.5	59.9	106.6	33.2	18.4	16.9	47.3	773.4	590.2	131.0	
1936	72.0	402.9	63.2	59.2	125.0	36.3	24.0	17.7	33.8	834.1	596.6	139.8	
1937	69.7	407.4	63.1	62.5	123.0	50.1	22.8	17.1	45.5	861.2	603.3	142.7	136.4
1938	81.7	363.4	71.3	61.4	122.2	44.8	23.0	18.2	45.3	831.3	610.2	136.2	
1939	71.1	392.6	45.8	71.7	124.7	26.7	24.6	16.9	45.6	819.7	618.1	132.6	
1940	82.1	337.9	47.3	71.8	113.3	40.0	21.3	14.7	49.2	777.6	626.9	124.0	

(Continued on next page.)

(continued on next page)

Table 2 continued.

Year	Burma	India and Pakistan	Indochina	Indonesia	Japan	Korea[a]	Philippines	Taiwan	Thailand	Total production	Population[b]	Per-capita production[c]	Annual average per-capita production[d]
	1,000,000 quintals										1,000,000	kilograms	
1941	71.4	386.7	51.2	67.6	102.3	46.2	f/	15.6	51.2				
1942	59.2	379.8	52.5	65.2	124.4	29.3		15.5	38.7				
1943	32.8	467.8	37.2	55.1	117.2	34.9		14.7	57.0				
1944	36.5	429.9	30.1		109.3	29.8	17.4	13.9	51.1				
1945	27.4	400.5			93.3	36.7	15.7	8.6					
1946	38.4	430.8	42.9	47.0	114.5	24.2	22.0	10.9	46.4	777.1	672.6	115.5	
1947	54.3	416.5	48.0	56.0	113.0	27.8	23.3	12.0	55.0	805.9	681.2	118.3	
1948	52.9	472.0	51.0	92.0	120.0	31.0	24.9	13.0	68.0	924.8	690.1	134.0	
1949	51.7	477.0	55.2	98.6	119.3	32.0	26.0	17.4	66.8	944.0	700.1	134.8	
1950	52.0	434.2	54.5	86.2	120.6	29.4	27.7	18.6	67.8	891.0	709.9	125.5	130.8
1951	55.0	434.5	58.2	99.1	113.0	25.6	28.3	19.0	72.5	905.2	720.5	125.6	
1952	58.4	488.2	59.5	104.5	123.5	29.1	31.5	20.7	66.1	981.5	731.5	134.1	
1953	65.4	501.1	61.3		100.0	30.9	32.2	20.7	76.3				

a/ South and North Korea.
b/ Total population for the selected countries.
c/ Total production divided by total population.
d/ Four- and five-year averages as indicated by brackets.
e/ Prior to 1929, Burma included in India and Pakistan production data.
f/ Blanks indicate data not available.

Source: For 1920-1946 production data: International Institute of Agriculture. International Yearbook of Agricultural Statistics, yearly issues. For 1946-1951: Food and Agriculture Organization of the United Nations. Yearbook of Food and Agricultural Statistics--Production, yearly issues. For 1952-1953: U.S. Office of Foreign Agricultural Relations. Foreign Agriculture Circular, Rice Statistics. Source of population data same as above from 1920-1951. Population data are census and official estimates of 1922, 1928, 1931, 1932, 1937, 1948, and 1951 in the selected countries. For other years, population figures have been extrapolated between two official census or estimate years.

TABLE 3

World Rice: World Production, Excluding China, and Per-Capita Production in Ten Asiatic Nations, 1921-1924 Average, Five-Year Averages 1925-1939, and 1949-1951 Average, Rough Basis

Years	World production, excluding China	Per-capita production in ten Asiatic nations
	billions of pounds	pounds
1921-1924	185.3	343.9
1925-1929	188.9	324.9
1930-1934	195.8	315.5
1935-1939	198.3	300.2
1949-1951	232.6	283.0

Source: Table 2, converted to pounds: 1 kilogram equals 2.2 pounds.

The major Asiatic harvests are completed by November and December of each year. Thus, calendar year average prices and estimates of production from the preceding December through calendar November are used in the analysis. For example, the 1928 price is an annual average of Friday quotations from the London exchange on No. 2 Rangoon cleaned rice, per 112-pound parcel, on C.I.F. terms. The supply variable for the same year is the estimate of world production as of November-December in 1927 plus estimated carry-over of Japanese stocks as of November 1, 1927.3/ Apparently, the impact of variations in world production upon average world prices has been dampened by carry-over stocks. However, the effect of such carry-overs cannot be measured.

The demand function for rice relates the annual prices which would be yielded for specified amounts of production when no other factor affecting price varies.4/ World supply was expressed in millions of quintals, 1 quintal equaling 220 pounds. Variations in rice demand among nations could reflect changes in consumer preference systems, in the relative supply or prices of competing goods, or in income.5/ Trend in demand reflects slow and systematic shifts in preference patterns, in the relative supply and price of competing goods, or in other minor or unspecified variables.

- -

3/ Stocks were included only for Japan because data on carry-over in other nations are not available. Furthermore, Japanese carry-over stocks are not available prior to 1925.

4/ World supply is taken to be a predetermined variable.

5/ Even in Japan, nearly one fourth of the income of the poorer classes is normally used for the purchase of rice and nearly 65 per cent for foods.

The variables introduced into the world analysis are shown in Table 4. Burma and Indochina were the two largest rice exporters during the interwar years, and London was the main rice-trading market during the same period. The correlations between London and Burma prices and between London and Saigon prices were sufficiently high that effectively the same results would be obtained by analysis of any one of the sets of prices. Therefore, the London price could be considered as representing the world price of rice. Furthermore, the London series was the only single continuous set.

The index of income was calculated from data for Japan, Indonesia, and India which then included Burma and Pakistan. The index of manufacturing production for India and Japan and the index of raw material production for Asia were multiplied by the annual wholesale price indices for India, Japan, and Indonesia, respectively, and deflated by the respective populations. The deflated products of the two indices for each country were weighted by the respective share of aggregate rice disappearance during the period 1922-1938. The weights were: India 70.3 per cent, Japan 20.3 per cent, and Indonesia 9.4 per cent. Indonesia is excluded prior to 1925 because of lack of data. The 1922-1925 weights are, therefore, India 77.7 per cent and Japan 22.3 per cent. The weighted and deflated products for the three nations were summed for each year. The base period was: 1925-1929 = 100. The index of income is admittedly imperfect. Nonetheless, it represents the most effective measure of purchasing power in the major importing nations which can readily be derived from available data.

Demand Equations.--In the first analysis, in which time was not introduced, the findings can be expressed as:

$$(1): \quad 1922\text{-}1938: \quad X_1 = 607.85 - \underset{(4.21)}{0.66}\, X_2 + \underset{(3.12)}{1.18}\, X_3$$
$$\bar{R} = 0.81$$

The variables X_1, X_2, and X_3 have the same meanings as in Table 4. The numbers in parentheses are t-ratios. The symbol $\bar{R}$ is the coefficient of multiple correlation.

On the average over the years 1922-1938, with no change in the index of purchasing power, an increase of 1,000,000 quintals in estimated world production was apparently associated with a decrease in the London price of 0.66 pence. On the average, with no change in the magnitude of world production, an increase of one point in the income index was associated with an increase of 1.18 pence in the average annual London price. Net regressions of London price upon supply and income were significant statistically. Approximately two thirds of the variance in the London price series could be explained by concomitant variation in world production and the Asiatic income index.6/ The reciprocal of the coefficient of price flexibility, which is a rough estimate of demand elasticity, was -.227, indicating that a change in annual world rice supply of 1 per cent was associated on the average with a change in London average annual price in the opposite direction of about 4.4 per cent, holding income constant.7/

- - - -

TABLE 4

World Rice: Factors Affecting Annual Average London Price,[a] Milled Basis, 1922-1938

Year	X_1 Actual price	X_2 World supply[b]	X_3 Index of income,[c] 1925-1929 = 100	X_4 Time, 1922 = 1	X_5 Per-capita supply[d]
	pence per 112 pounds	1,000,000 quintals	per cent		kilograms
1922	170	862	97.6	1	159.7
1923	164	880	96.1	2	163.2
1924	186	789	108.6	3	143.2
1925	177	870	98.9	4	151.4
1926	184	866	100.5	5	151.0
1927	175	860	102.4	6	148.2
1928	164	854	93.6	7	145.2
1929	158	887	102.7	8	150.0
1930	132	869	78.0	9	143.7
1931	94	920	65.9	10	150.4
1932	100	901	63.8	11	145.3
1933	79	902	68.6	12	144.0
1934	80	917	77.3	13	145.4
1935	92	881	85.7	14	138.4
1936	93	876	91.8	15	131.9
1937	110	949	114.8	16	140.1
1938	99	953	112.0	17	142.7

a/ Quotations of milled rice in London, No. 2 Rangoon, per 112 pounds.

b/ Exclusive of China. Previous year's production plus Japanese carry-over.

c/ Nominal per-capita income index based on the three largest rice-consuming countries in Asia. See p. 7 for methods of calculation.

d/ Based on production and population data of the ten major rice-producing countries in Asia including Japanese carry-over since 1925.

Logarithmic expression of the variables yielded the following relationships:

(2): 1922-1938: $\log X_1 = -14.93 - \underset{(4.27)}{4.89} \log X_2 + \underset{(3.00)}{0.82} \log X_3$
$\bar{R} = 0.81$

The symbols X_1, X_2, and X_3 have the same meanings as in Table 4. The numbers in parentheses are t-ratios. The symbol $\bar{R}$ is the coefficient of multiple correlation. On the average, with no change in Asiatic buying power, a given percentage change in supply was associated with a percentage change in London price in the opposite direction of nearly five times greater magnitude. A net increase of 1 per cent in the income index was associated with a change in price in the same direction of only 0.8 per cent. If the interwar structure of demand were to reappear, a relatively small increase in supply could lead to a relatively large decline in world price.

The introduction of time into the analysis of price variation leads to the following results:

(3): 1922-1938: $X_1 = 205.53 - \underset{(1.23)}{0.14} X_2 + \underset{(5.67)}{1.08} X_3 - \underset{(6.55)}{5.61} X_4$
$\bar{R} = .96$

Approximately 93 per cent of the variance in prices was associated with variation in supply, income, and the passage of time.[8] With no change in world rice supply or in Asiatic purchasing power, the London price decreased on the average by 5.61 pence per year. The net regression of price upon purchasing power was approximately the same as in Equation 1. The net relationship of price to supply in Equation 3 is not statistically significant.

Two basic conclusions emerge: (1) a given net percentage increase in world production appears to have been associated with a larger percentage decrease in world price and (2) there is evidence of a downtrend in world demand.[9] If the gradual shrinkage in world per-capita demand should accelerate or if world supplies should increase significantly, world price reflected at the United States farm could drop to a level lower than the United States support price. In this event, heavy diversion of United States rice to government storage would be expected.

- -

8/ The higher correlation is largely attributable to the close gross correlation of price on time. The following intercorrelations were obtained, using the subscripts of Table 4: $r_{14} = -.86$; $r_{24} = .72$; and $r_{34} = .16$.

9/ The analysis is not significantly improved by expression of the supply variable in terms of per-capita production in Asia. With estimated annual Asiatic rice supply in kilograms divided by estimated annual population indicated by X_5, the following two equations are adduced:

(4): 1922-1938: $X_1 = -411.11 + \underset{(3.06)}{2.86} X_5 + \underset{(3.10)}{1.36} X_3$
$\bar{R} = 0.73$

(5): 1922-1938: $X_1 = 264.07 - \underset{(1.81)}{1.08} X_5 + \underset{(5.80)}{1.05} X_3 - \underset{(8.50)}{7.62} X_4$
$\bar{R} = 0.96$

Equation 4 is not an acceptable explanation. Evidence of a secular decline in level of demand is fortified by Equation 5.

Long-Run Outlook for Exports

The volume of 1952 world trade in rice was only about one half the prewar level. The relative positions of both export and import nations have shifted drastically. Appraisal of the long-run export outlook for United States rice requires determination of the apparent reasons for the shift in total volume of world trade and its distribution among the participating countries. At war's end, 12,000,000 acres of riceland lay idle in Asia. Grasses had invaded paddies. Internal transport was poor. Civil disturbance was general. Production had increased over prewar levels in Thailand alone. Relief shipments were made in heavy volume. Foreign trade was stringently controlled.

Production.--Yields per acre of the major rice nations have been stable. Highest yields are obtained in Japan, fluctuating around a declining trend but with 1952 yields above the prewar average. Yields are also higher in South Korea and Taiwan than in Asiatic countries other than Japan.10/ Korean yields have uptrended to about 2,500 pounds per acre. Yields in Taiwan are nearly at prewar levels. Outputs per acre have fluctuated without clear trends in Burma, Indonesia, Pakistan, Thailand, Philippine Republic, India, and Indochina. There have been slight downtrends in Thailand and Pakistan. Other nations have either maintained or increased prewar yields. Output per acre in Ceylon is lower than in other nations but shows no systematic trend. The greatest decline from prewar levels appears in the 1953 estimates for Japan. The yield-per-acre data shown in Table 5 and in Figure 2 do not explain the sharp changes in the volume of world rice trade or in its distribution among nations.

The same conclusions are applicable to total annual production. China is the largest producer with no clear-cut trend. Production in India has recovered from the 1950 low of 70,000,000,000 pounds and has since climbed well above prewar output. Gross annual outputs in Pakistan and Japan have, in general, been at about the same levels as prior to World War II. The 1953 estimate for Japan is down about 17 per cent from 1952 due primarily to bad weather conditions. Indonesian production is slightly above the prewar average and has trended upward steadily. Output in Thailand is about 75 per cent above prewar levels but has remained fairly stable since 1949. Outputs in Burma, Indochina, and South Korea are still below prewar levels but appear to be recovering. Taiwan production has gone up slightly. United States output has also increased steadily. These data are charted in Figure 3 and tabulated in Table 5. Both Asiatic and world output have increased over the last five years. By 1949, world production was up to its prewar level. By 1952, Asiatic output had increased over prewar levels. Production in the 11 major Asiatic nations, shown in Figure 4, is above 1935-1939 levels. The total annual production data for the entire world, for major regions, and for major rice nations do not explain the postwar changes in volume and allocation of world trade.

Changes in the percentage of world production originating in the various regions and nations are shown in Table 6 and in Figures 5 and 6. Asiatic production comprised more than 95 per cent of prewar world output but only about 92 per cent in 1952. The slow downtrend in Asian output as a percentage of world production has persisted since the end of the war. Except for 1950, the 11 major nations of Asia have consistently produced about 60 per cent of

- -

10/ This may be due to production of short-grain types which characteristically yield more heavily than long-grain varieties.

TABLE 5

World Rice: Yield Per Acre and Production, Selected Nations, Rough Basis, 1934-1938 Average and 1949-1953 Annual

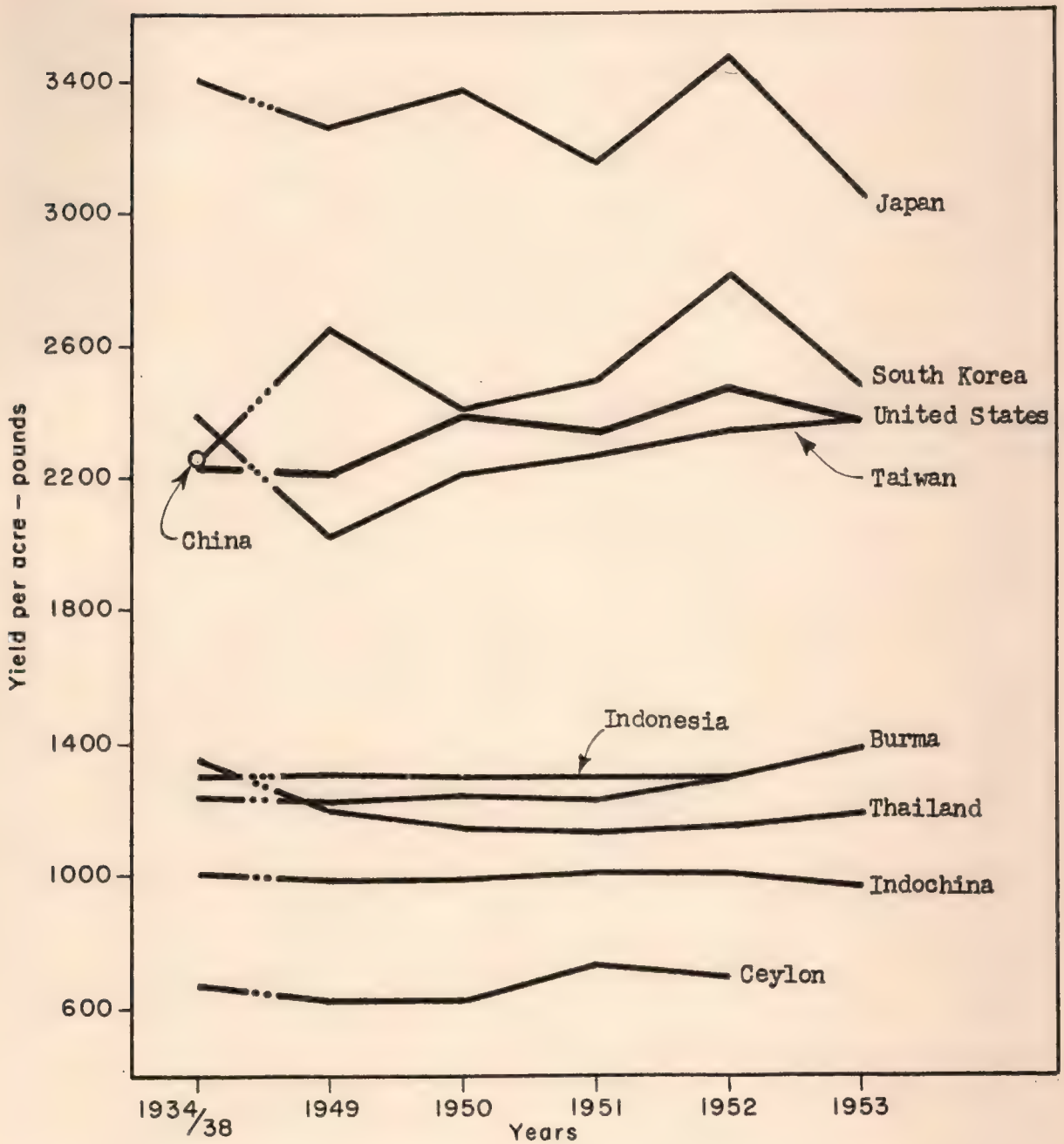
Nation	Yield per acre							Production						
	1934-1938 average	1949[a]	1950	1951	1952	1953	1953 ÷ 1935-1939 average	1934-1938 average	1949	1950	1951	1952	1953	1953 ÷ 1935-1939 average
	pounds						per cent	1,000,000 pounds						per cent
Burma	1,238	1,226	1,242	1,230	1,301	1,385	111.9	15,683	11,400	11,505	11,600	12,866	14,400	91.8
Ceylon	672	633	626	738	700	[b]	104.2[c]	585	702	594	764	700		119.6[c]
India	1,194	1,033	921	1,018	1,067	1,086	91.0	74,740	77,921	70,000	75,000	80,000	82,000	109.7
Indochina	1,006	996	992	1,016	1,008	964	95.8	14,396	12,150	12,000	12,800	13,100	13,500	93.8
Indonesia	1,300	1,308	1,300					21,126	20,000	20,690	21,828	23,000		108.9[c]
Japan	3,403	3,262	3,369	3,148	3,464	3,043	89.3[d]	26,793	25,702	26,443	24,744	27,189	21,996[d]	82.1[d]
Pakistan	1,301	1,257	1,230	1,159	1,190	1,202	92.4	24,340	27,368	27,560	26,046	27,398	28,250	116.1
Philippine Republic	973	1,050	1,037	977	1,142	1,127	115.8	4,720	5,745	5,721	6,239	6,931	7,100	150.4
South Korea[e]	2,256	2,649	2,403	2,493	2,807	2,473	109.6	8,658	6,835	6,468	5,640	6,400	6,800	78.5
Taiwan	2,394	2,025	2,213	2,270	2,343	2,374	99.2	3,845	3,826	4,087	4,438	4,561	4,700	122.2
Thailand	1,353	1,202	1,143	1,138	1,148	1,191	88.0	9,588	14,735	14,951	16,000	14,555	16,800	175.2
China	2,259							110,372	98,100	103,500	98,000	103,650		93.9[c]
Eleven Asiatic nations[f]								204,374	206,384	200,019	205,129	216,720		106.0[c]
Total Asia								319,865	311,147	311,671	310,529	328,576	329,250	102.9[g]
Total world								334,877	337,276	338,884	337,817	356,736	359,339	107.3[g]
United States	2,234	2,215	2,388	2,328	2,468	2,578	106.4	2,243	4,075	3,869	4,580	4,866	5,133	106.4

[a] Crop year, December-November.
[b] Blanks indicate data not available.
[c] 1952 data--1953 harvest data not available.
[d] Latest production estimate, 217,000.
[e] 1934-1938, all Korea.
[f] Excludes China and others not named.
[g] Preliminary.
Source: U.S. Office of Foreign Agricultural Relations, periodical publications.

| | | |

FIGURE 2

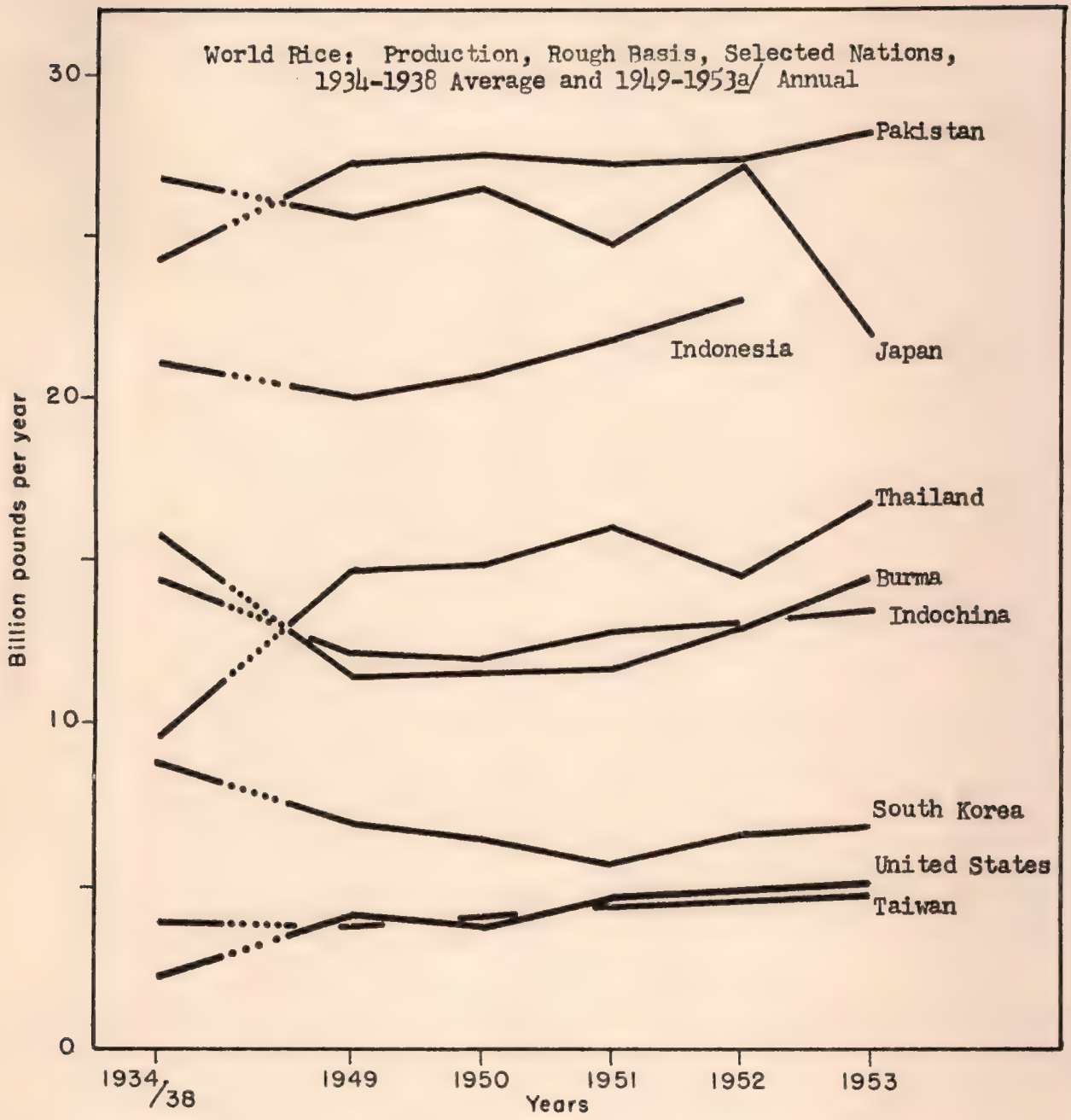
World Rice: Yield Per Acre, Rough Basis, Selected Nations, 1934-1938 Average and 1949-1953a/ Annual



a/ Preliminary estimates for 1953.

Source: Table 5.

FIGURE 3

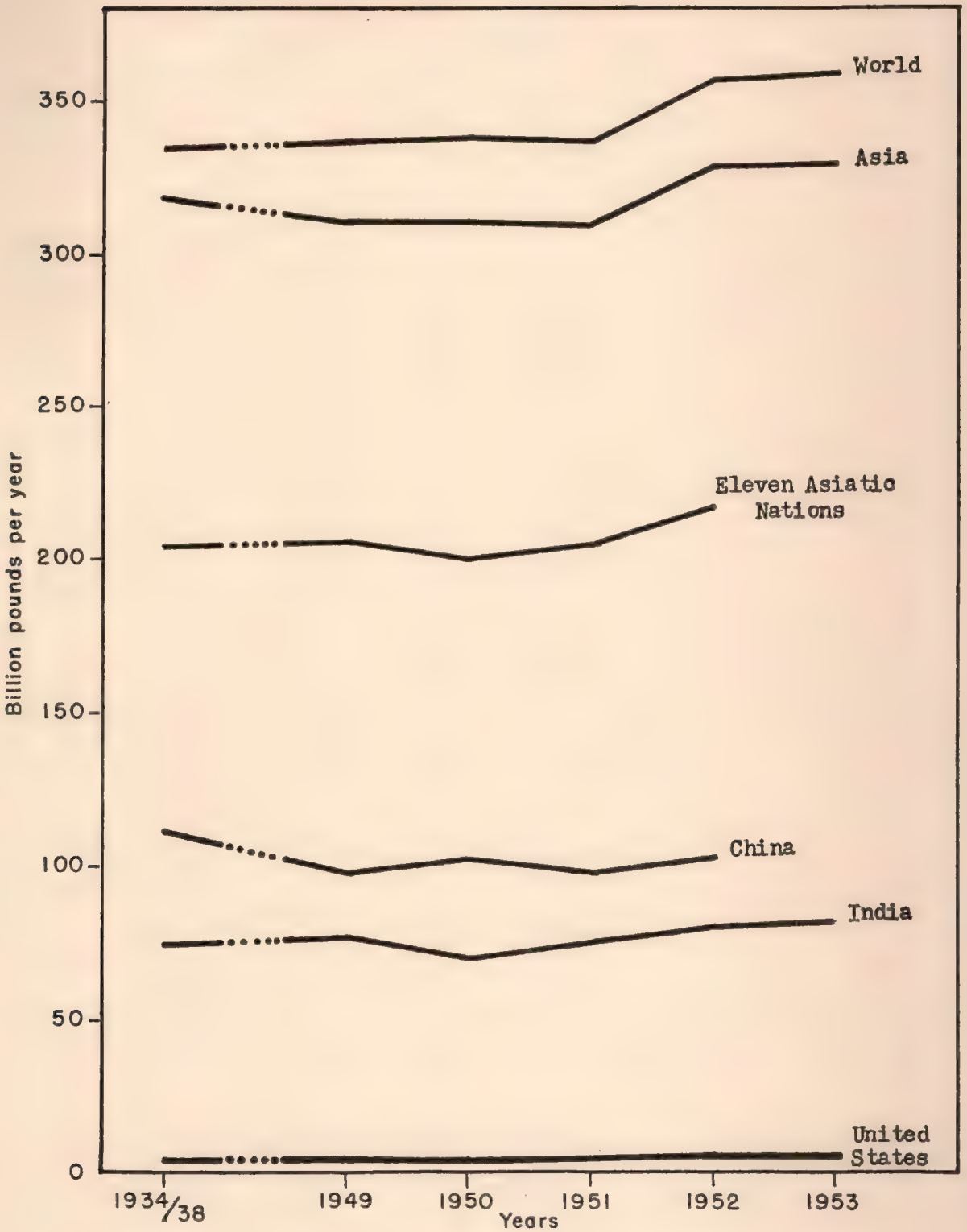


a/ Preliminary estimates for 1953.

Source: Table 5.

FIGURE 4

World Rice: World, Asiatic, Eleven Asiatic Nations, China, India, and United States Production, Rough Basis, 1934-1938 Average and 1949-1953a/ Annual



a/ Preliminary estimates for 1953.

Source: Table 5.

TABLE 6

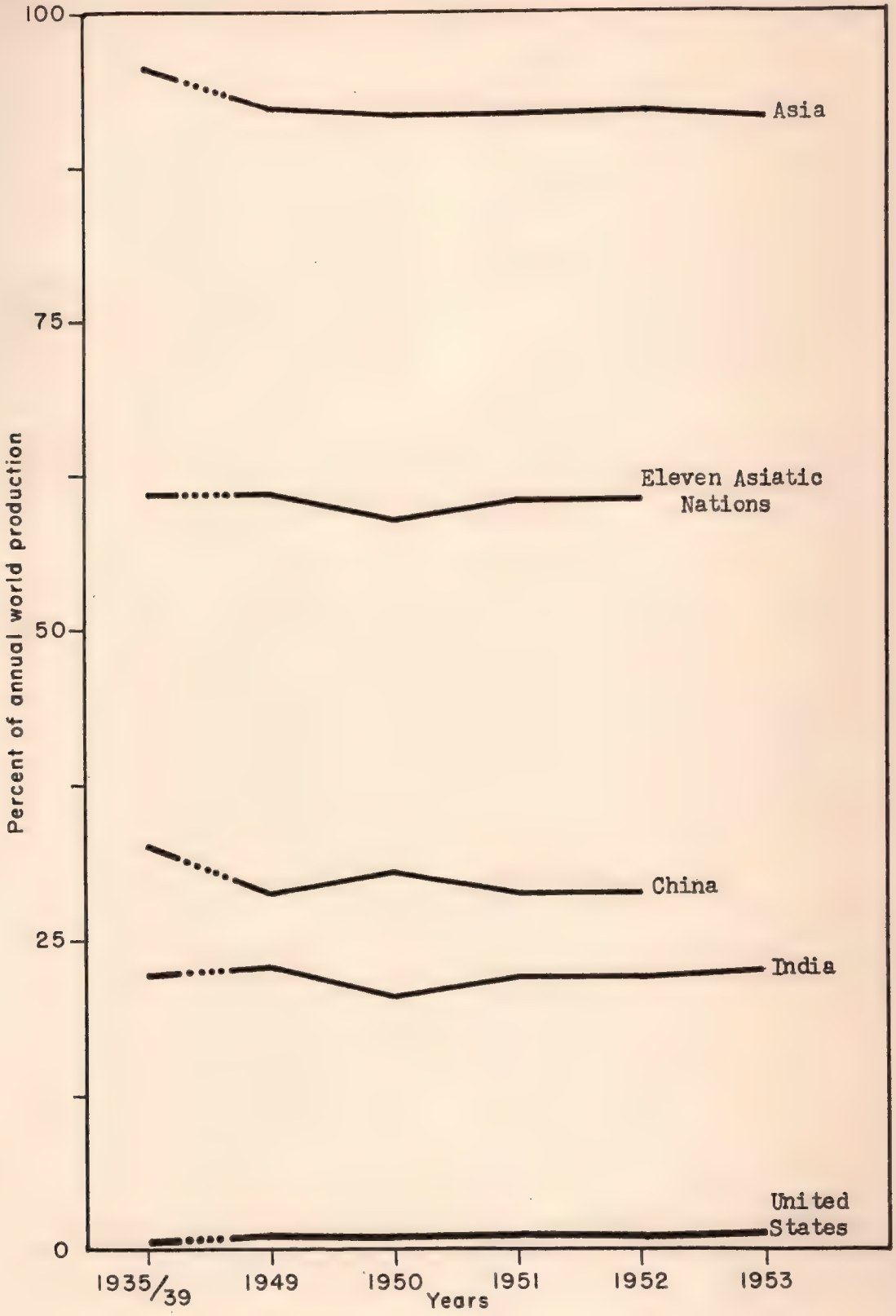
World Rice: Percentage of World Production and Per-Capita Production, Asiatic Nations and United States, Rough Basis, 1935-1939 Average and 1949-1953 Annual

Nation	Percentage of world production						Per-capita production					
	1935-1939 average	1949	1950	1951	1952	1953	1935-1939 average	1949	1950	1951	1952	1952 ÷ 1935-1939 average
	per cent						pounds					per cent
Burma	4.68	3.66	3.69	3.74	3.92	4.01	978	626	622	621	677	69.2
Ceylon	0.17	0.21	0.18	0.23	0.19	a/	102	96	79	99	88	86.3
India	22.32	23.10	20.66	22.20	22.43	22.82	245	225	196	208	218	89.0
Indochina	4.30	3.60	3.54	3.79	3.67	3.76	621	442	429	427	409	65.9
Indonesia	6.31	5.93	6.11	6.46	6.45		313		281	285	292	93.3
Japan	8.00	7.62	7.80	7.33	7.62	6.12 b/	383	313	319	294	317	82.8
Pakistan	7.27	8.11	8.13	7.71	7.68	7.86	369	368	367	343	358	97.0
Philippine Republic	1.41	1.70	1.69	1.85	1.94	1.98	307	297	293	308	335	109.1
South Korea c/	2.59	2.03	1.91	1.67	1.79	1.89	370	390	320	275	312	84.3
Taiwan	1.15	1.13	1.21	1.31	1.28	1.31	695			575	584	84.0
Thailand	2.86	4.37	4.41	4.74	4.08	4.68	662	819	816	849	755	114.0
China	32.96	29.06	30.54	29.00	29.07		245	212	223	211	224	91.4
Eleven Asiatic nations	61.03	61.19	59.02	60.72	60.75		334	298	282	285	295	88.3
Total Asia	95.52	92.25	91.97	91.93	92.11	91.63	279	248	245	242		86.7 d/
Total world	100.00	100.00	100.00	100.00	100.00	100.00	156	142	141	148		94.9 d/
United States	0.67	1.21	1.15	1.36	1.36	1.43						

a/ Blanks indicate data not available.
b/ Preliminary estimate.
c/ All Korea, prewar.
d/ 1951 data.
Source: U.S. Office of Foreign Agricultural Relations, periodical publications.

FIGURE 5

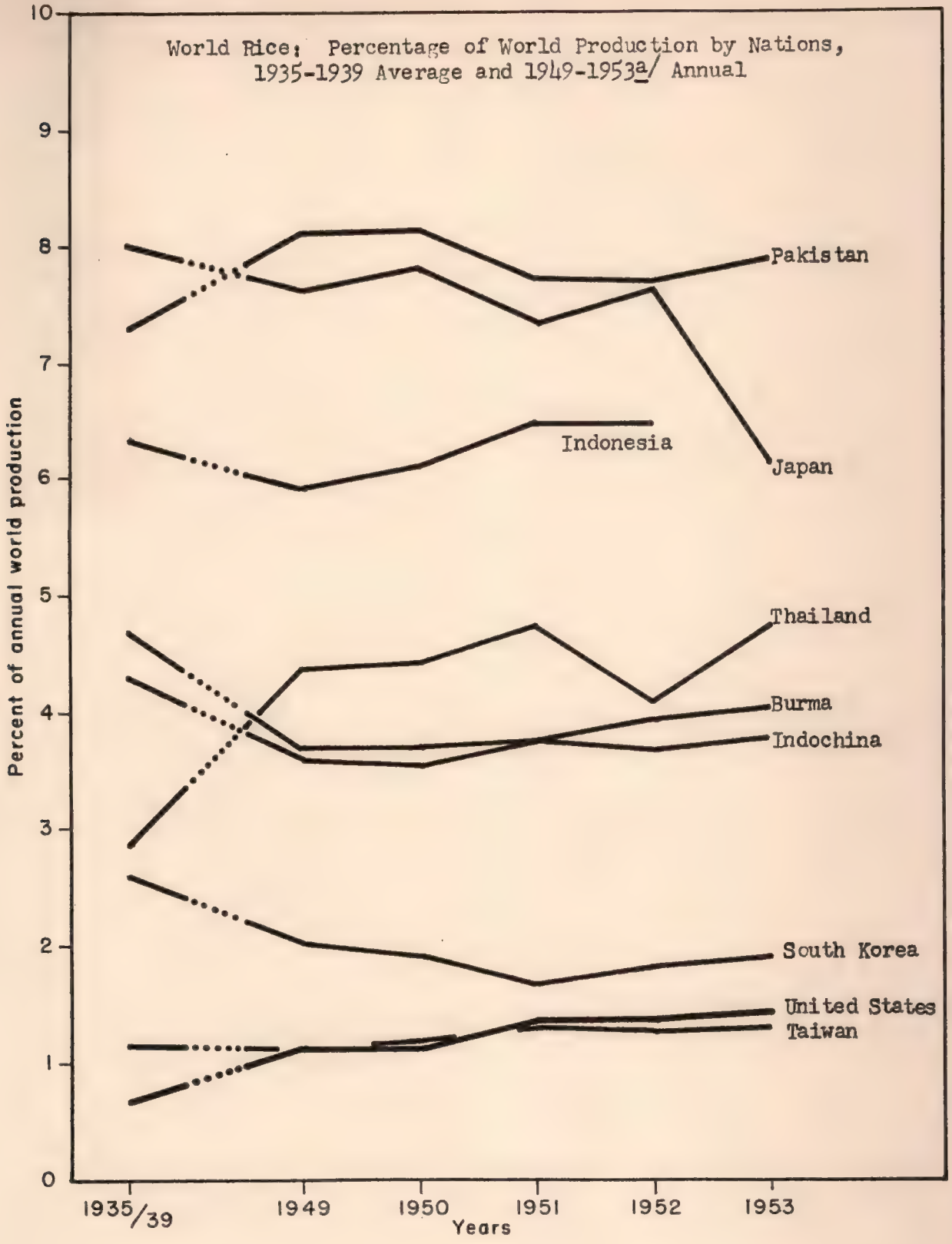
World Rice: Percentage of World Production, Total Asiatic, Eleven Asiatic Nations, China, and India, 1935-1939 Average and 1949-1953a/ Annual



a/ Preliminary estimates for 1953.

Source: Table 6.

FIGURE 6



a/ Preliminary estimates for 1953.

the world crop. Production in China has apparently declined steadily from about 35 per cent of world output to less than 30 per cent. India has produced about 22.5 per cent of world supply. The proportions of world output originating in other nations have also been stable. The Pakistan percentage has increased slightly. The Japanese percentage has decreased slowly. Thailand production as a percentage of world output is well above prewar levels. Burma, Indochina, and South Korea--all exporting nations and all affected by war or revolution--have produced significantly diminished percentages of world production since World War II. Relative outputs in Taiwan and the United States have increased slightly. There is some evidence of alternating yields in Japan. There have been relative declines in exporting nations. However, relative outputs in regions or nations have not changed sufficiently to explain changes in world trade.

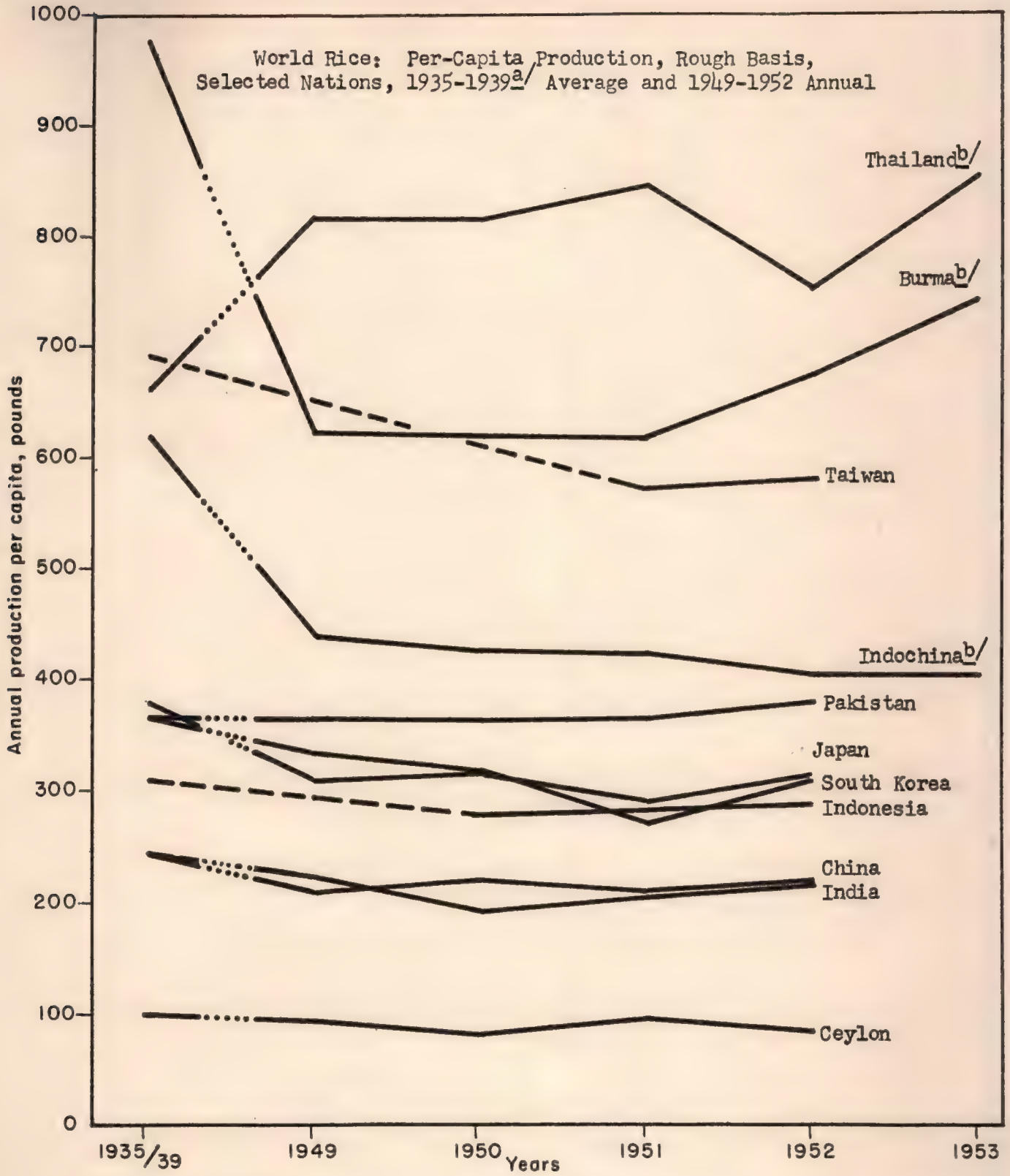
Per-Capita Production and Disappearance.--Deflation of the production data by population, shown in Table 6 and Figure 7, partly explains the shifts in international trade. Thailand is the only exporting nation with a postwar per-capita production significantly higher than prewar levels. Average annual output in Thailand was about 660 pounds per person per year prior to World War II, peaked at 850 pounds in 1951, but appears to have dropped in 1952.11/ Among the other exporting nations, decreases in per-capita production have been general. Burmese average annual per-capita production fell from a prewar level of 978 pounds to about 621 pounds in 1951 and recovered to 677 pounds per capita in 1952. Increases in per-capita production for 1953-54 are reported for Burma and Thailand. Per-capita output in Taiwan is relatively high but, nonetheless, has trended downward from nearly 700 pounds to less than 600 pounds, in part as a result of increases in population. Per-capita production in Indochina, more than 200 pounds below the prewar level of 620 pounds, has declined steadily since 1949, partly in consequence of continuous warfare. Crude preliminary estimates indicate a further slight per-capita decline for the 1953-54 crop year. Per-capita production in South Korea has also declined until recently. Apparent consumption has been maintained by relief shipments.

Much the same general trends have prevailed among the major importing nations. Per-capita output in Japan--with a virtually fixed production base--has declined slightly but steadily. The same observations are apparently applicable to Indonesia, India, China, and, to a lesser extent, Ceylon. Thus, the secular rate of increase in population in most exporting and importing areas has outstripped the long-run rate of increase in total production of rice. Per-capita production has declined relatively faster than per-capita consumption. Despite the evidence of a long-run decline in per-capita Asiatic demand, the difference in these two rates has created a potential for imports to Asia. In a large measure, the dislocations of trade are attributable to war in Burma, Indochina, and South Korea; to revolution in Indonesia and Burma; to mobilization in Taiwan; and to the difficulties incident to defeat and occupation in Japan. Per-capita production has diminished most sharply in some of the exporting nations. The exchange positions of importing nations have deteriorated. However, the long-run conclusion seems apparent: unless the demand for rice tends to shrink at an accelerated rate, the high rate of population increase will create a long-run market for rice from non-Asiatic areas--assuming that

---

11/ Apparently the occupation of Thailand by the Japanese involved little destruction of productive capacity.

FIGURE 7



a/ The 1935-1939 figure refers to the total Korean area; no figures available for South Korea for this period.

b/ Crude, preliminary estimates for 1953.

Source: Table 6.

importing nations can obtain exchange to finance purchases. The American segment of the Asiatic market may be smaller than its present dimensions if peace returns to Burma, Indochina, and South Korea. However, the disparity in long-run trends of production and population indicate that ultimately the productive capacity of Asiatic nations may fall far enough behind population increase to lessen and perhaps to nullify the advantage now held by Asiatic exporting countries over other producing areas as a result of cheaper transfer costs.

Per-capita production has clearly trended downward since the war in most of the major importing nations. However, except for Thailand, the rate of decline in per-capita output has been greater among the exporting nations than in the importing countries. This, again, appears to be one of the factors explaining the entry of non-Asiatic sources of supply into the Asiatic market.

Changes in apparent disappearance of the several nations are shown in Table 7 and in Figures 8 and 9. Apparent disappearance is calculated by adding net imports to national production or by subtracting net exports from national production. Total apparent disappearance in China has downtrended steadily. Disappearance in India was well below the prewar levels in 1950-51 but, by 1952, had risen above the total for the prewar years. These two nations are the major rice-using nations but are relatively unimportant in the rice trade. Total disappearance in Japan is still a little below the prewar average but has risen steadily since 1949. The decrease in total disappearance may be due to war dislocations--loss of Korea and Taiwan and scarcity of foreign exchange. Pakistan has increased its total utilization of rice to levels well above the 1935-1939 average. Apparent disappearance in Indonesia declined only a little from prewar levels and is now well above them. There has been a sharp increase in internal utilization in Thailand, both in total and on a per-capita basis. Apparent total utilization in Asia as a whole is above prewar levels. About 300,000,000,000 pounds of rice were utilized annually in Asia on the average over the years 1935-1939. World utilization in 1952 was estimated at about 356,000,000,000 pounds.

Deflation of the apparent annual disappearance in the various countries by the respective population estimates almost completely reverses the trends shown in the total annual disappearance data. Only two nations are apparently consuming significantly more rice per person than in prewar years. Per-capita consumption in Thailand has risen about 28 per cent above the prewar average of 460 pounds per person per year. Similarly, per-capita disappearance has risen sharply in Taiwan since 1949. This increase may be due to the military establishment of Nationalist China and to diminution of shipments to Japan. Eight of the Asiatic nations have increased their per-capita consumption in 1952 to levels significantly above those for 1951. There were declines in 1952 in Thailand, Indochina, Ceylon, India, and China. Nonetheless, there is evidence of declining apparent per-capita disappearance in Burma, Indochina, Japan, Ceylon, India, and China. Per-capita utilization is highest in Thailand. Internal per-capita use is also relatively high in Burma, Indochina, and Taiwan. Apparent per-capita disappearance ranges from 300-400 pounds in the other countries except for Ceylon, India, and China, where consumption has trended downward to about 200 pounds per person per year. Increases in per-capita disappearance in South Korea and Taiwan may be attributable, in part, to freedom from forced exports to Japan.

Thus, declines in apparent per-capita production seem to have been paralleled by relatively less sharp declines in apparent per-capita utilization.

Changes in apparent disappearance of the several nations are given in

TABLE 7

World Rice: Apparent Disappearance[a] and Apparent Per-Capita Disappearance, Selected Nations, Rough Basis, 1935-1939 Average and 1949-1953 Annual

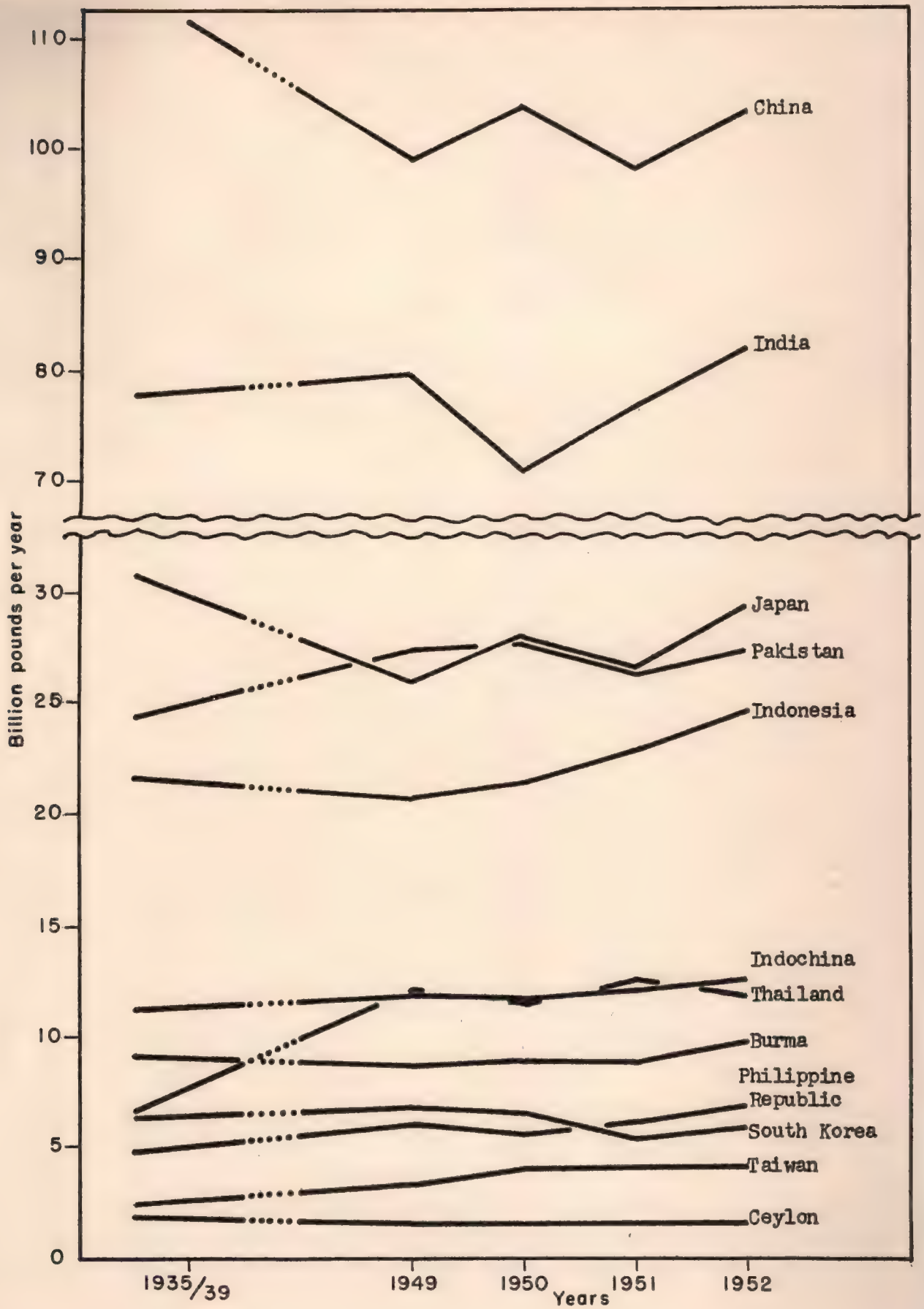
Nation	Apparent disappearance						Apparent per-capita disappearance					
	1935-1939 average	1949	1950	1951	1952	1952 ÷ 1935-1939 average	1935-1939 average	1949	1950	1951	1952	1952 ÷ 1935-1939 average
	1,000,000 pounds					per cent	pounds					per cent
Burma	9,147	8,768	8,866	8,804	9,942	108.7	570	480	480	470	520	91.2
Ceylon	1,804	1,589	1,690	1,648	1,593	88.3	320	220	220	210	200	62.5
India	77,844	79,641	70,790	76,678	81,618	104.8	260	230	200	210	220	84.6
Indochina	11,175	11,923	11,733	12,074	12,603	112.8	480	430	420	400	390	81.2
Indonesia	21,552	20,789	21,443	22,860	24,674	114.5	320	290	290	300	310	96.9
Japan	30,683	25,990	27,923	26,512	29,386	95.8	440	320	340	310	340	77.3
Pakistan	24,340	27,405	27,560	26,046	27,398	112.6	370	370	370	340	360	97.3
Philippine Republic	4,850	6,066	5,703	6,239	6,931	142.9	310	310	290	310	330	106.4
South Korea	6,364	6,835	6,541	5,370	5,970	93.8	270	340	320	260	290	107.4
Taiwan	2,426	3,256	4,160	4,211	4,329	178.4	440	450	550	550	560	127.3
Thailand	6,668	12,055	11,681	12,573	11,407	171.1	460	670	640	670	590	128.3
China	111,216	99,000	103,685	97,895	103,250	92.8	250	210	220	210	220	88.0
Total Asia	301,322	304,931	305,094	302,477	321,061	106.6	260	240	240	235	[b]	90.4[c]
Total world	334,877	337,276	338,884	337,817	356,736	106.5	156	142	141	148		94.9
United States	2,028	2,942	2,789	3,574	3,143	155.0						

[a] Production minus net exports or plus net imports.
[b] Blanks indicate data not available.
[c] 1951 data.

[a] Information refers only economic or type test flights.
[b] Flights terminated prior to completion.
[c] Test flight.

FIGURE 8

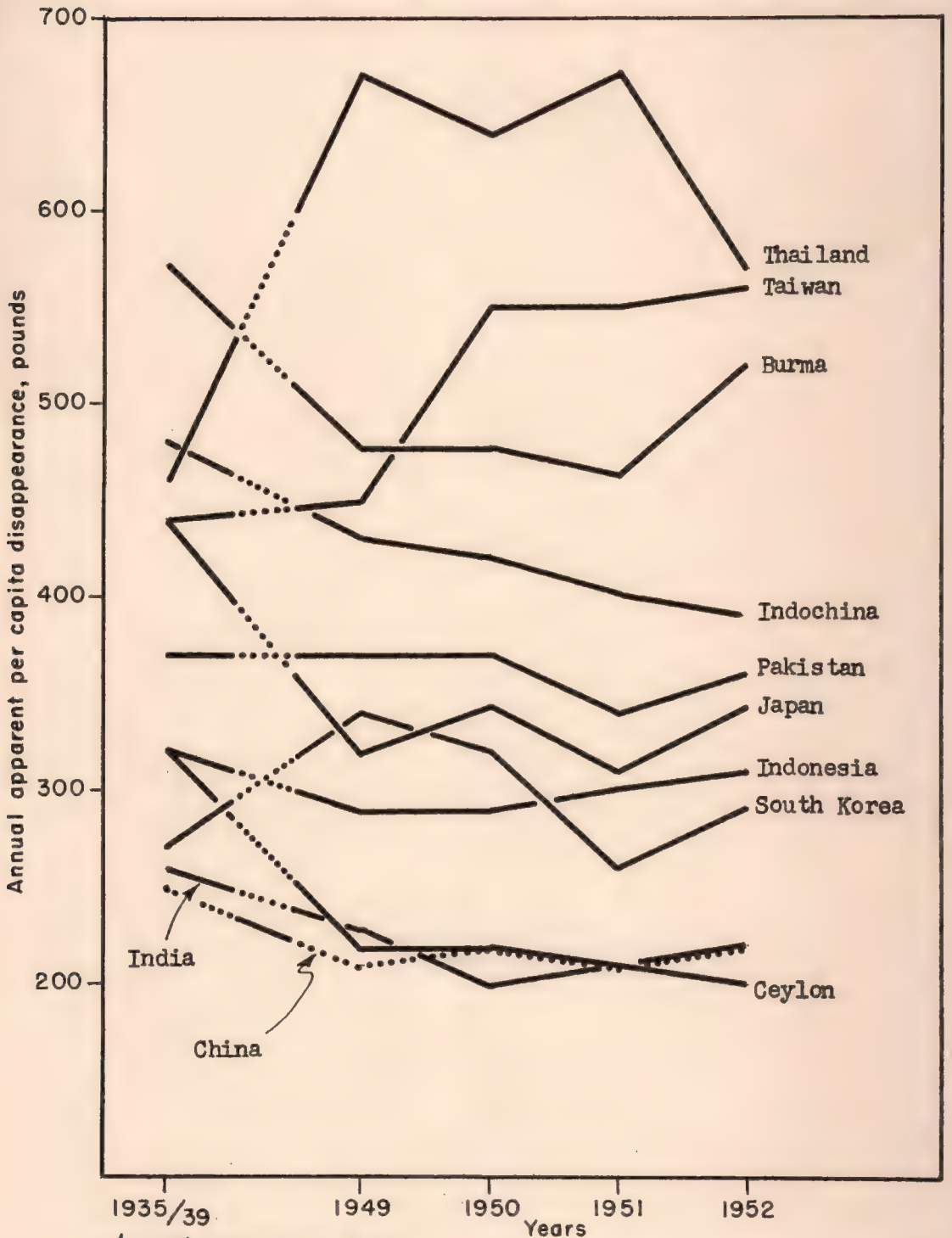
World Rice: Apparent Disappearance, Rough Basis,
Selected Nations, 1935-1939 Average and 1949-1952 Annual



Source: Table 7.

FIGURE 9

World Rice: Apparent Per-Capita Disappearance, Rough Basis, Selected Nations, 1935-1939 a/ Average and 1949-1952 Annual



a/ 1935-1939, all Korea.

Source: Table 7.

Average per-capita disappearance for Asia as a whole is nearly 10 per cent below the prewar level. The downward drift in Asia seems to have extended over three decades. World average per-capita utilization is about 5 per cent below prewar levels. Thus, the statistical evidence of a gradual shrinkage in per-capita demand appears to be substantiated. The difference in trends of per-capita production and per-capita disappearance among the several nations appears to explain the change in distribution of trade among nations.

Exports and Imports.--The basic wants of the Asiatic peoples may change, although there is little indication that accelerated substitution of other cereals has been voluntary or even successful. However, there have been apparent shifts from rice to other foods in Asia over the past three decades. A stable market for non-Asiatic nations will depend upon availability of dollar exchange, which since the war has come largely from extraordinary sources which are now shrinking. Presumably, long-run market opportunities should be financed by dollar exchange actually earned by the importing nations.

Prior to World War II, Burma, Indochina, and Thailand were the major exporters. About two thirds of Indo-Chinese exports were sold within the French Union. Japan depended upon domestic production and the output of Formosa and Korea. Burma and Thailand supplied India, Ceylon, and China. Trade was largely in the hands of private British enterprises. Since the war, Asiatic exports have gone largely to Asia, with trade in Asiatic hands but largely on a government basis.

Only two major nations--Thailand and the United States--are now exporting more rice than they did in the years 1935-1939. Thailand, with some 3,000,000,000 pounds per year was the major exporter in 1953. Estimates of available export surpluses for 1954 indicate that Burma has apparently regained its prewar position. Annual exports from Burma have declined from about 6,500,000,000 pounds in prewar years to less than 3,000,000,000 pounds. However, Burmese exports have increased from about 2,600,000,000 pounds in 1949 to about 2,900,000,000 in 1952. The volume of net exports is also sharply down from prewar levels in Indochina, South Korea, and Taiwan. In contrast, United States exports have risen from about 215,000,000 pounds, prewar, to 1,700,000,000 pounds in 1952. Major competition will come from Burma, Indochina, South Korea, Taiwan, Thailand, and perhaps Red China.

Production in Indochina fell about one fourth during World War II. Recovery has been impeded by revolution. Once the second largest exporting nation, Indochina normally shipped about one third of its exports to other Asiatic nations. The state of South Viet-Nam produced about half the Indo-Chinese production of 14,400,000,000 pounds, prewar. Production in that state, occupied by insurgent Viet Minh forces, fell to about 2,000,000,000 pounds in 1951.

Imports in Japan, Indonesia, Ceylon, and India declined sharply at the end of the war as a result of difficulties in obtaining exchange except through relief, military, or other unusual sources. However, relative decline in Asiatic exports exceeded the fall in Asiatic imports. The disparity in these two rates offered opportunity for United States rice to flow to Asia. Sources of exchange were made available to finance such movement to Asia from a variety of unusual and essentially noncommercial sources.

Maintenance of such trade will be determined, in part, by the possibilities: of Asiatic exporters regaining prewar volume of export surpluses, of

TABLE 8

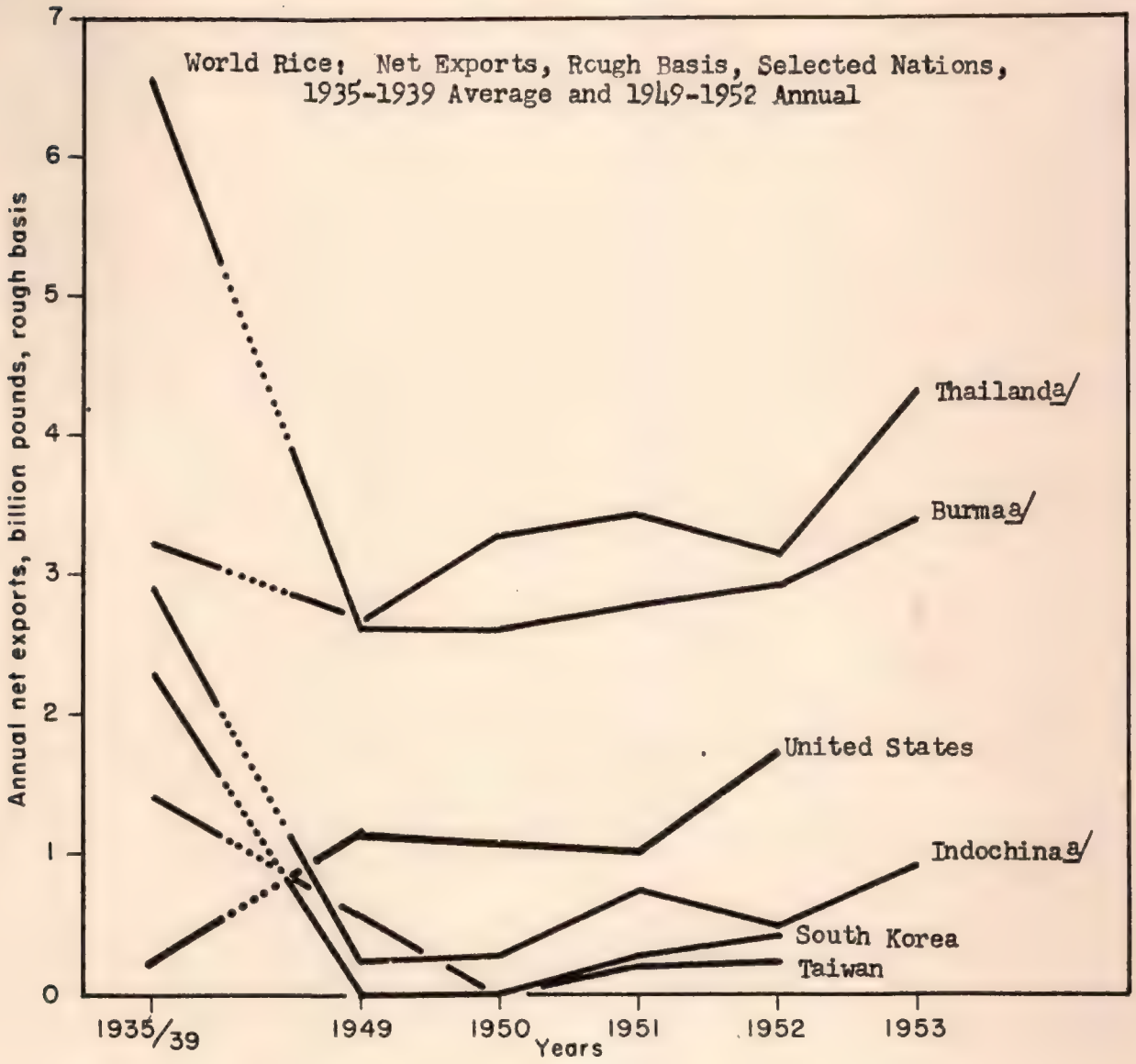
World Rice: Net Exports and Net Imports, Selected Nations, Rough Basis, 1935-1939 Average and 1949-1952 Annual

Nations	Net exports						Net imports					
	1935-1939 average	1949	1950	1951	1952	1952 ÷ 1935-1939 average	1935-1939 average	1949	1950	1951	1952	1952 ÷ 1935-1939 average
	1,000,000 pounds					per cent	1,000,000 pounds					per cent
Burma	6,536	2,632	2,639	2,796	2,924	44.7	--[a]	--	--	--	--	[b]
Ceylon	--	--	--	--	--	--	1,219	887	1,096	884	293	24.0
India	--	--	--	--	--	--	3,104[c]	1,720	790	1,678	1,618	52.1
Indochina	3,221	227	267	726	497	15.4	--	--	--	--	--	
Indonesia	--	--	--	--	--	--	426	789	753	1,032	1,674	393.0
Japan	--	--	--	--	--	--	3,890	288	1,480	1,738	2,197	56.5
Pakistan	--	--	--	--	--	--	--	37	--	--	--	--
Philippine Republic	--	--	18	--	--	--	130	321	--	--	--	--
South Korea	2,294	--	--	270	430	18.7	--	--	73	--	--	--
Taiwan	1,419	570	--	227	232	16.3	--	--	73	--	--	--
Thailand	2,920	2,680	3,270	3,427	3,148	107.8	--	--	--	--	--	--
China				105	400	--	844	900	185	--	--	--
Total Asia	18,543	6,216	6,577	8,052	7,515	53.9	13,944	6,451	6,244	8,093	9,023	64.7
Total world	19,983	8,906	9,282	11,075	11,051	55.3	19,284	8,327	8,806	11,005	10,957	56.8
United States	215	1,133	1,080	1,006	1,723	801.4	--	--	--	--	--	--

[a] Dashes indicate zero.
[b] Blanks indicate data not available.
[c] Includes Pakistan.

Source: U.S. Office of Foreign Agricultural Relations. FR Rice Circular.

FIGURE 10

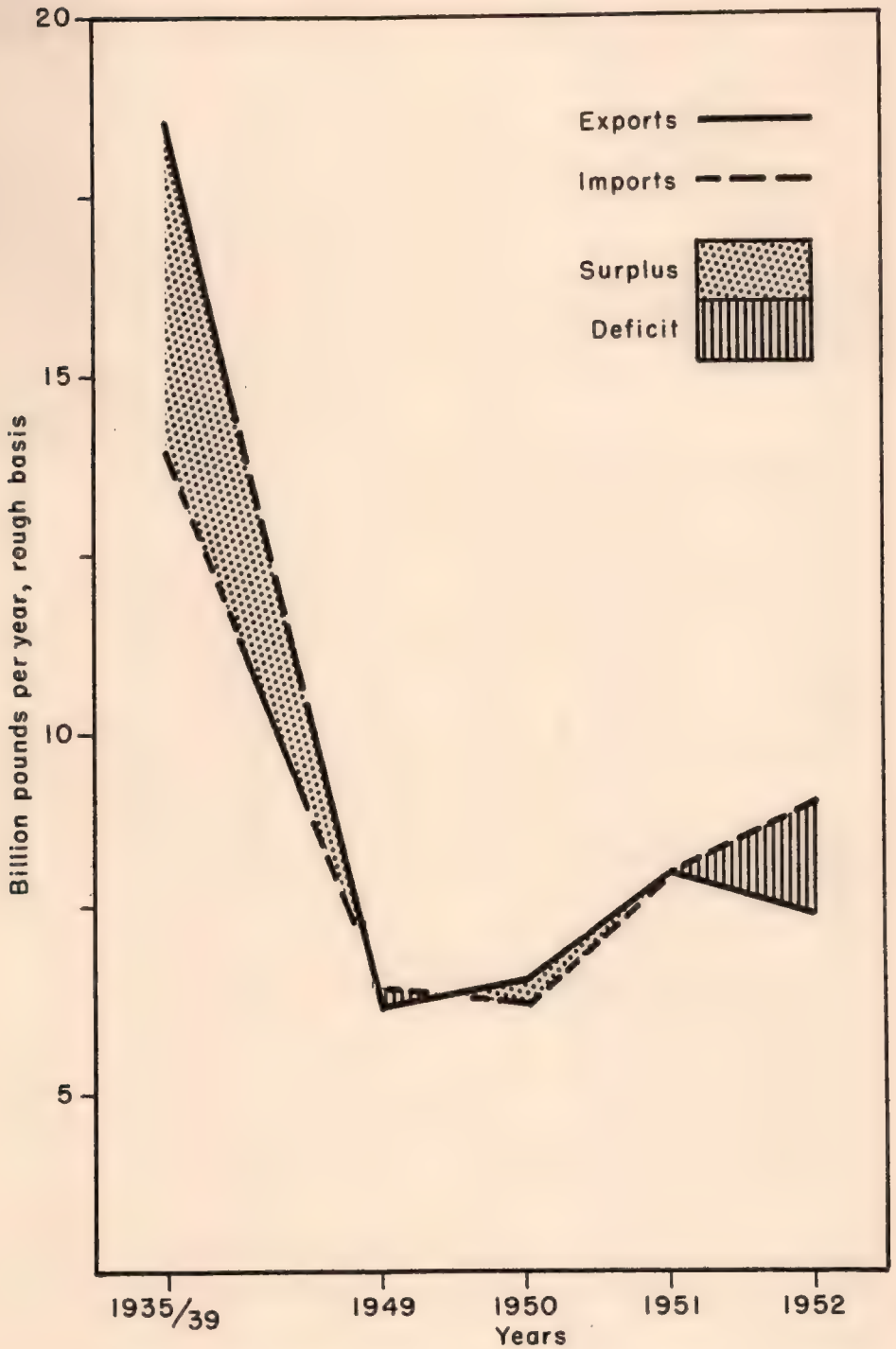


a/ 1953--preliminary estimates.

Source: Table 8.

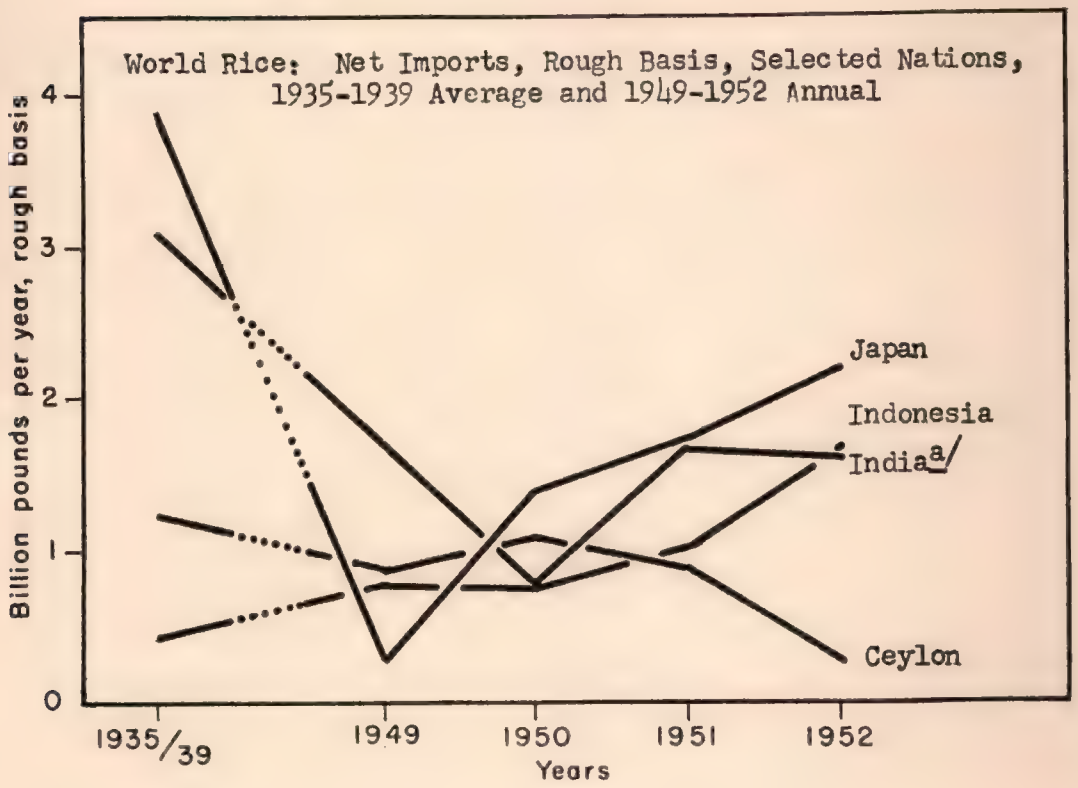
FIGURE 11

World Rice: Asiatic Exports, Imports, and Trade Balances, Rough Basis, 1935-1939 Average and 1949-1952 Annual



Source: Table 8.

FIGURE 12



a/ Includes Pakistan on prewar data.

Source: Table 8.

Asiatic importing nations regaining prewar levels of imports, of changes in world price, of a continuing disparity between declining Asiatic rates of consumption and production sufficient to engender trade from non-Asiatic origins, and of Asiatic nations earning or otherwise getting sufficient dollar exchange to finance purchases from the United States.

The preference of Asiatic populations for rice will probably continue. Even with prewar export surpluses, there will be a lower per-capita supply. Asiatic export nations will maintain lower transfer costs to Asiatic markets. It seems likely that net dollar balances--either earned or given--in Asiatic import nations will be smaller. The dollar balances of both Indonesia and Japan appear to be deteriorating rapidly. There is outlook for continued long-run wants for United States rice in Asia, lower world prices as the apparent increases in surpluses in export nations begin to affect markets, and a reluctance among Asiatic nations to use earned dollars for rice if it can be obtained through other currencies at comparable prices. Two issues are crucial: (1) what will be the impact of United States domestic farm-price policy upon export trade if world prices should fall by as much as 10 per cent, and (2) how can Asiatic nations obtain dollars to finance Asiatic imports of United States rice?

In 1952, Burma shipped less than 45 per cent of the prewar exports; Indochina, only 15 per cent; South Korea, 19 per cent; Taiwan, 16 per cent; Asia as a whole, 54 per cent; and the world, about 55 per cent. The major reason seems to have been not so much the decline in production in specified countries but, rather, the general increase in population at a higher rate than the increase in total production. War or revolution in the three export nations, Burma, Indochina, and South Korea, resulted in lower per-capita production and per-capita utilization, although total production has been fairly stable. The decline in per-capita output in all of the exporting nations except Thailand seems to be a major reason for the decrease in export trade.

Prior to World War II, Asia exported about 4,500,000,000 pounds per year more than it imported. Asia was deficit in the immediate postwar years. In 1950, the export surplus was only about 25,000,000 pounds. In 1952, Asia was deficit in rice by about 1,500,000,000 pounds. Part of this deficit may be due to war dislocations which may require several years for full recovery, even if general peace should be achieved. More fundamental, the continuous increase in Asiatic population has focused heavy pressure upon productive capacity.

The bulk of Asiatic rice imports is delivered to Japan, India, Ceylon, and Indonesia. These nations comprise the potential American export market in Asia. In all of them except Indonesia, imports in 1949 were significantly below prewar levels. Except for Ceylon, where imports have continuously declined, the volume has increased since 1950. In 1952, Indonesia imported about 400 per cent of its prewar volume; Ceylon, about 25 per cent; India, about 50 per cent; Japan, about 57 per cent; and Asia, about 65 per cent. Asia exported only 54 per cent of prewar volume in 1952.

Thus, the shrinkage in per-capita production and in apparent per-capita disappearance in nearly all of the Asiatic nations is reflected in sharp declines in both exports and imports by the relatively few nations which enter significantly into the world rice trade.

The United States now exports more than seven times its prewar volume. In a large measure, United States exports reflect relief shipments or sales financed by loans, relief outlays, or expenditures by the United States government for military operations or administration of occupied areas.

The percentage of world exports originating in the various nations has changed significantly. These data are shown in Table 9 and are charted in Figures 13 and 14. Prewar, Burma exported 33 per cent of a world trade volume twice as large as in 1952. In 1952, Burma exported about 25 per cent of the smaller volume of world trade. Indochina exports declined from about 16 per cent to 5 per cent of world volume. South Korea decreased from about 11.5 per cent to 4 per cent. Taiwan declined from about 7 per cent to 2 per cent. The 1952 percentage of world exports originating in Thailand at about 28.5 per cent of world volume was about twice the prewar magnitude. However, the Thailand percentage of world trade declined sharply in 1951 and 1952 from the peak of 1950. South Korea and Indochina have both increased the percentage of world exports originating there since 1950. Both nations are still well below prewar levels. The United States now originates about 16 per cent of net exports of the world. Asia as a whole has declined from about 93 per cent of prewar exports to a present total of about 68 per cent. There are, however, indications that 1954 trade in Asia will again approach prewar levels.

The change in the status of the United States as an exporter of rice will affect domestic price policy if multiple pricing plans are adopted for rice. Prior to the war, it could be assumed properly that a change in the volume of United States rice placed on world markets would have little effect upon world prices. With nearly one sixth of rice exports now originating in the United States, the assumption may be invalid. Changes in United States exports may result in changes in world prices. However, the essential effectiveness of multiple pricing systems as alternatives to the present price-support system would not be affected by the increase in percentage of world exports from the United States. The domestic prices and sales--and, consequently, export volume and prices--which would yield maximum returns to United States producers would be different from those which would maximize returns if the United States were still a negligible factor in world trade. The basic arguments for or against multiple pricing systems are not affected, however.

In terms of percentage of world importation, by 1952 Japan had nearly recovered its prewar position of about 20 per cent. Indonesia and India each imported about 15 per cent. The Indonesian percentage has tripled since 1935-1939. The Indian percentage of total world imports was still below the prewar level. The decline from 92-68 per cent of world exports originating in Asia has been paralleled by relative expansion of Asiatic imports. Before the war, the Asiatic nations imported about 72 per cent of world trade. In 1952, Asiatic nations purchased 82 per cent of world imports. Again, total production in the Asiatic market is above prewar levels. However, the position of Asia as an exporter no longer is maintained regularly. The Asiatic region is now an importer of rice.

Before the war, annual Asiatic exports comprised about 15.5 per cent of annual world production. In 1952, only about 2 per cent of world production was exported by Asiatic nations. Prewar, Asia imported about 4.2 per cent of world production, with the difference between 15.5 and 4.2 per cent of world production available for non-Asiatic trade. Now, Asia imports 2.5 per cent of world production. The difference between 2 and 2.5 per cent in 1952 reflected

TABLE 9

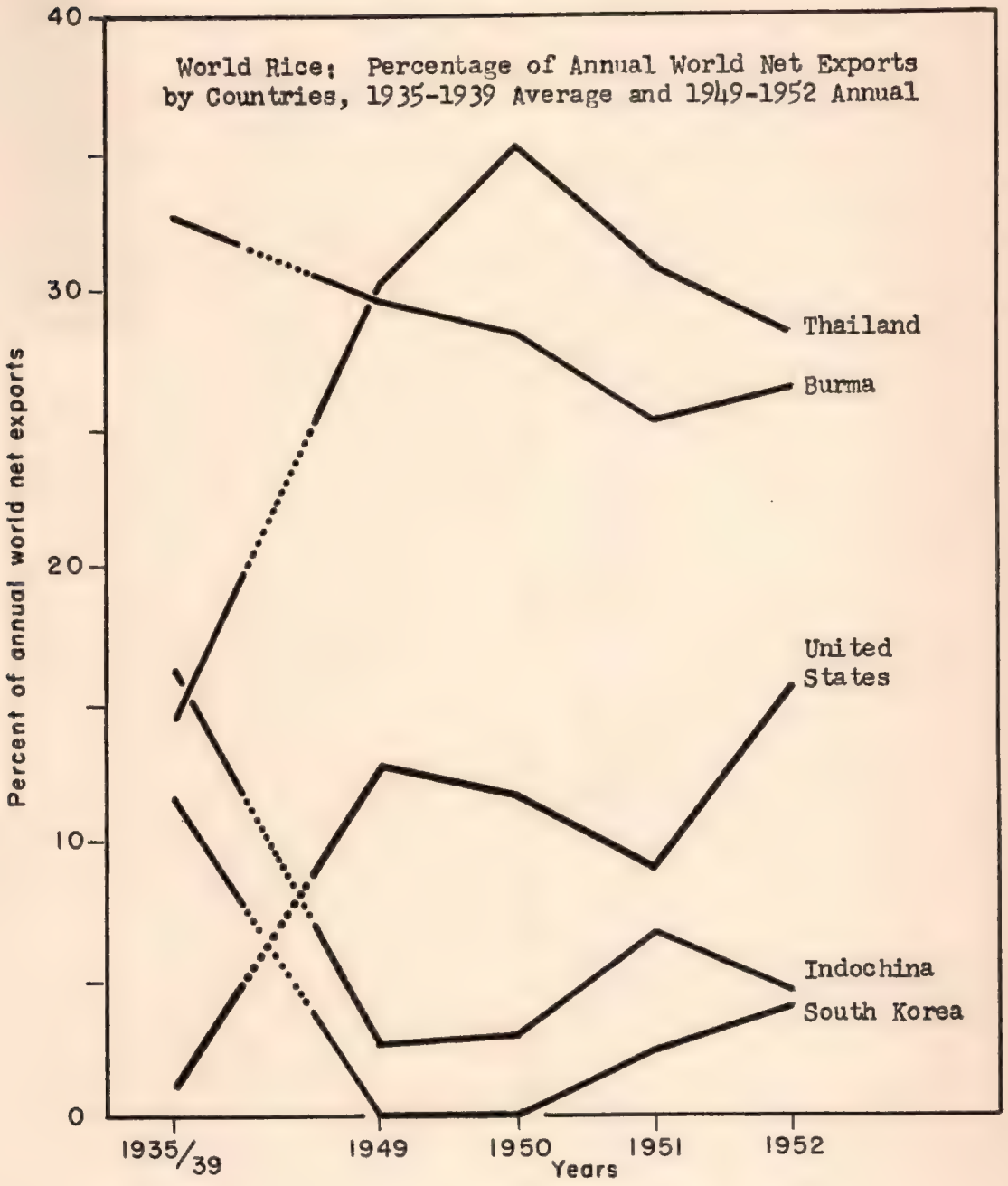
World Rice: Percentage of Net World Exports and Net World Imports, Selected Nations, Rough Basis, 1935-1939 Average and 1949-1952 Annual

Nation	Percentage of world net exports					Percentage of net world imports				
	1935-1939 average	1949	1950	1951	1952	1935-1939 average	1949	1950	1951	1952
Burma	32.71	29.55	28.43	25.25	26.46	--[a]	--	--	--	--
Ceylon	--	--	--	--	--	6.32	10.65	12.45	8.03	8.15
India	--	--	--	--	--	16.10	20.66	8.97	15.25	14.77
Indochina	16.12	2.55	2.88	6.55	4.50	--	--	--	--	--
Indonesia	--	--	--	--	--	2.21	9.47	8.55	9.38	15.28
Japan	--	--	--	--	--	20.17	3.46	16.81	15.79	20.05
Pakistan	--	--	--	--	--	--	0.44	--	--	--
Philippine Republic	--	--	0.19	--	--	0.67	3.85	--	--	--
South Korea	11.48	--	--	2.44	3.89	--	--	0.83	--	--
Taiwan	7.10	6.40	--	2.05	2.10	--	--	0.83	--	--
Thailand	14.61	30.09	35.23	30.94	28.49	--	--	--	--	--
China	--	--	--	0.95	3.61	4.38	10.81	2.10	--	--
Total Asia	92.79	69.75	70.86	72.70	68.00	72.31	77.47	70.91	73.54	82.35
Total world	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
United States	1.07	12.72	11.64	9.08	15.59	--	--	--	--	--

[a] Dashes indicate zero.

Source: Calculation based on Table 8.

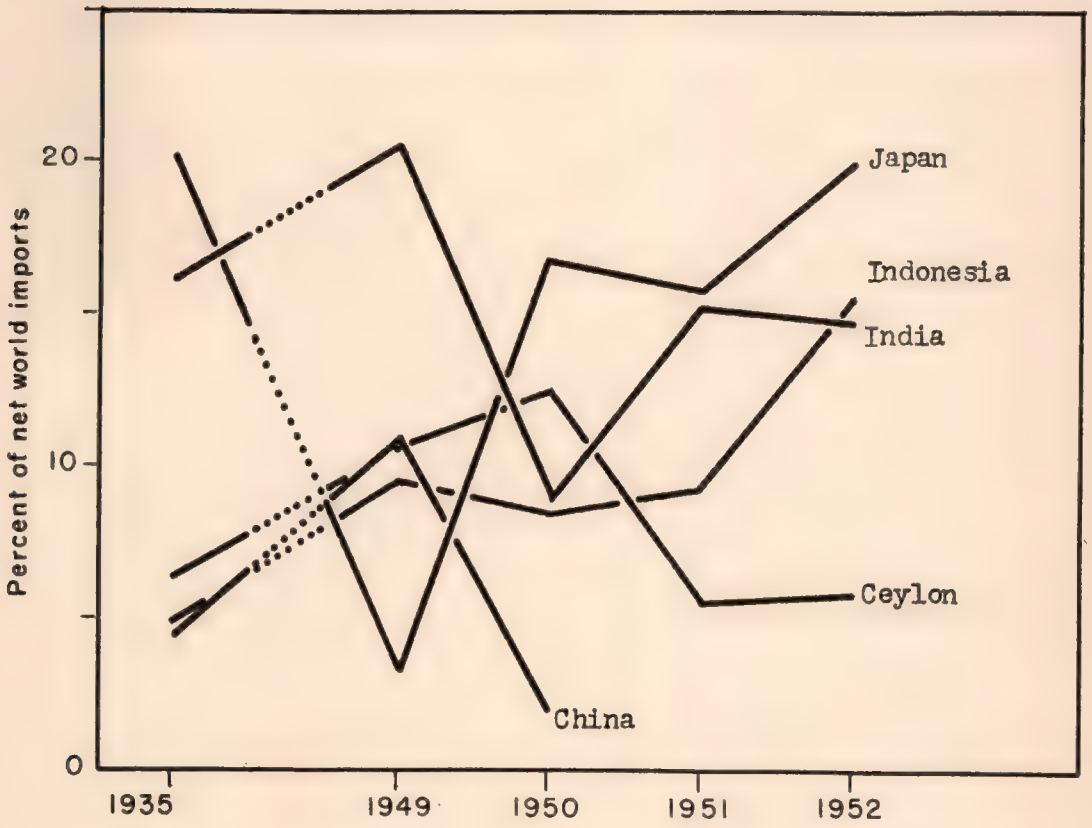
FIGURE 13



Source: Table 9.

FIGURE 14

World Rice: Percentage of Annual World Net Imports
by Countries, Rough Basis,
1935-1939 Average and 1949-1952 Annual



Source: Table 9.

the Asiatic rice deficit. United States exports now represent almost one half of 1 per cent of world output. Japanese imports are about 6.6 per cent of world production against 1.2 per cent prewar. However, Japanese apparent disappearance represents 8.2 per cent of world production against 9.2 per cent in 1935-1939. Thus, the Japanese market appears to have maintained a relatively stable position.

TABLE 10

World Rice: Regional Trade as Percentages of World Production, Average 1935-1939 and Annual 1949-1952

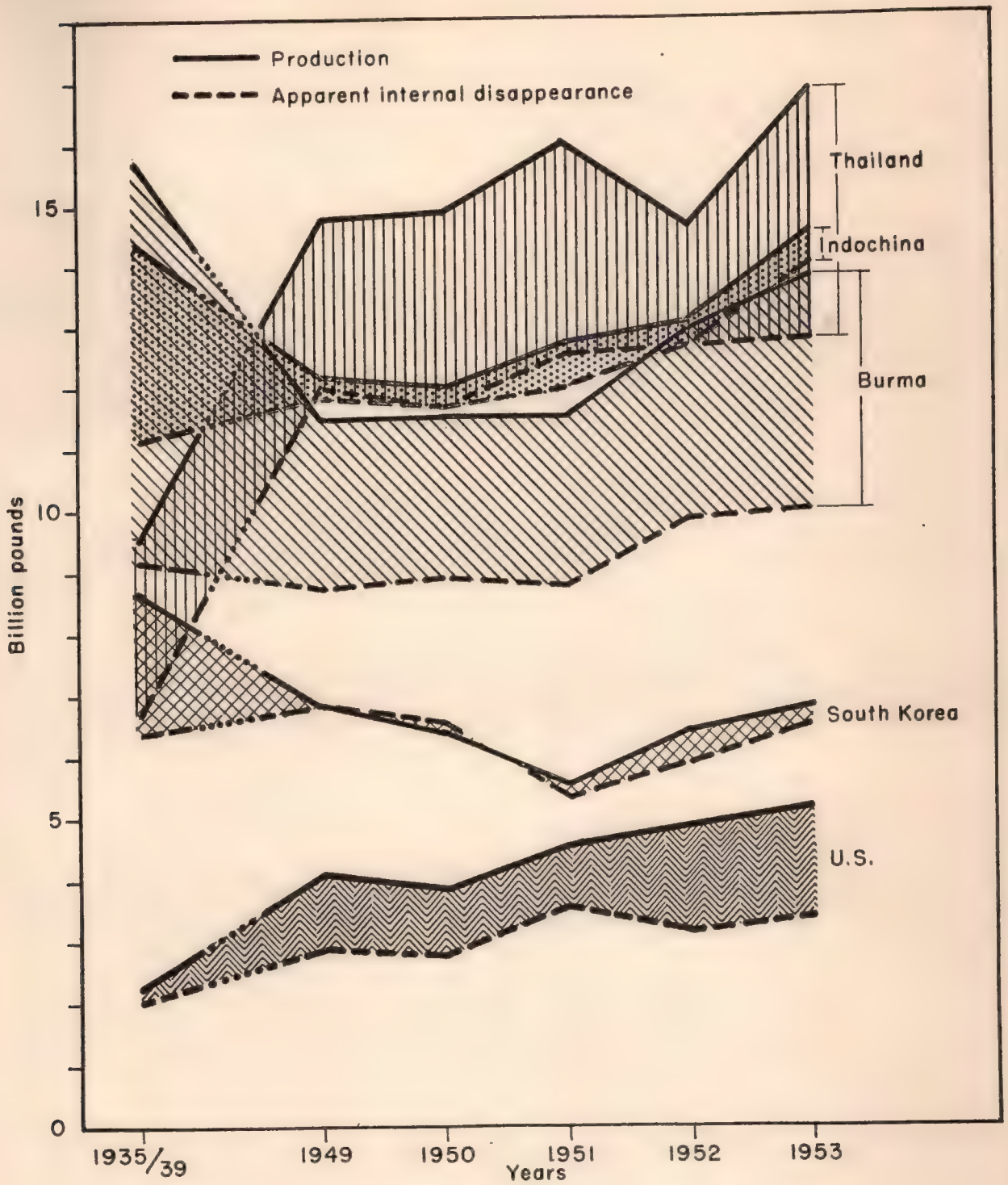
Relative	1935-1939 average	1949	1950	1951	1952
	per cent				
Asiatic exports	5.54	1.84	1.94	2.38	2.11
United States exports	.0006	.34	.32	.30	.48
World exports	5.97	2.64	2.74	2.75	3.09
Asiatic imports	4.18	1.91	1.84	2.40	2.53
Japanese imports	1.16	.0008	.44	.51	.62
Japanese apparent disappearance	9.16	7.71	8.24	7.85	8.24

Changes in production, apparent disappearance, and in exportable surpluses are summarized in Figure 15 for Thailand, Burma, Indochina, and the United States. For each band, the upper line indicates estimated annual production; the lower line indicates estimated annual apparent disappearance; and the difference between the two lines represents the apparent exportable surplus. For Thailand, the export surplus is larger than in prewar years. Except for 1952, the difference between production and apparent internal disappearance appears to have expanded since 1949. The Burmese exportable surplus is much smaller than in prewar years primarily because of lower output. Internal apparent disappearance has changed about in the same way as postwar total production. The export surplus has been fairly stable in magnitude but is expected to increase sharply for calendar 1954 in Burma and in Thailand also. The large prewar surplus in Korea has nearly vanished as both production and internal use declined. An export surplus has reappeared, but its size and that of both production and internal use are still much below prewar levels. Effectively the same changes have occurred in Indochina. In Taiwan, not shown on the chart, both production and apparent internal use are up with a smaller export surplus than in prewar years. The expanded band for the United States is clearly related to the diminished export surplus of major Asiatic exporters.

In Figure 16, the same kind of data are charted for major importers. The upper line of each band represents estimated internal disappearance and the lower line indicates annual production. The difference represents the import deficit. The import deficit is a relatively small fraction of the domestic production of the four major importers. The import deficit in Japan was still considerably smaller in 1952 than in prewar years. The deficits for 1953 and 1954 will apparently be larger. In Ceylon, both production and disappearance

FIGURE 15

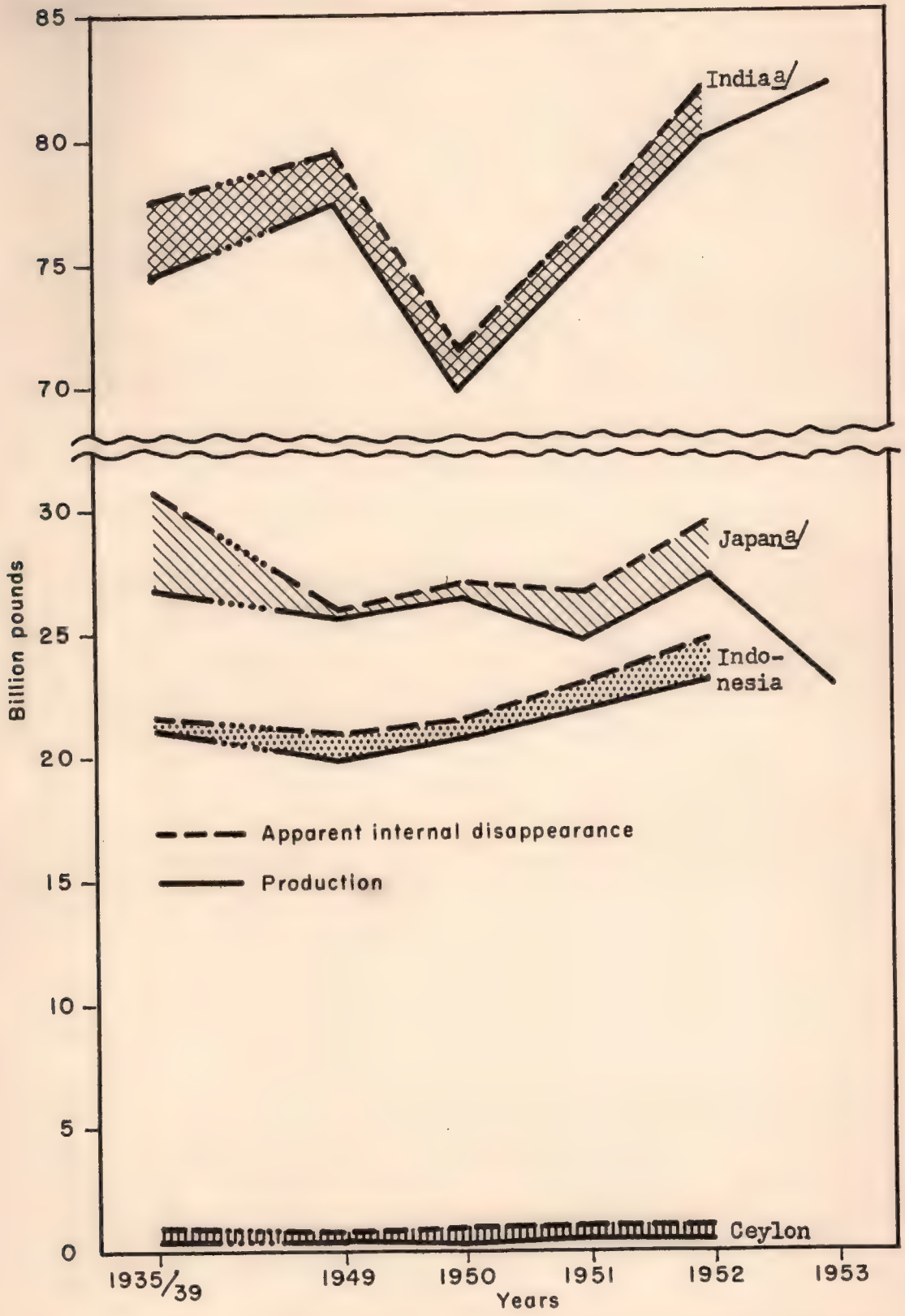
World Rice: Apparent Production Minus Apparent Disappearance, Major Export Nations, 1935-1939 Average and 1949-1953a/ Annual



a/ 1953--preliminary estimates.

FIGURE 16

Asiatic Rice: Production, Apparent Disappearance, and Nominal Import Deficits, Asiatic Nations, 1935-1939 Average and 1949-1952 Annual



a/ Apparent internal disappearance not available for 1953.

have been very stable. In Indonesia, production and disappearance have risen at about equal rates.

The apparent export surpluses and import deficits for major nations are charted in Figure 17. The sharp wartime declines in both exports and imports and the relatively slow rates of recovery are clearly indicated.

Changes in apparent per-capita export surpluses and deficits are shown in Figures 17 and 18. The Thailand surplus per capita has remained remarkably constant. The Burmese per-capita surplus has been relatively constant since the end of the war but is still far below prewar levels. In Indochina, per-capita disappearance has fallen steadily but per-capita production has fallen even faster. Per-capita production there is well below the prewar level of internal per-capita disappearance. The export surplus in Indochina and to a lesser extent in Korea has been maintained by a decline in per-capita consumption paralleling the decline in per-capita production. In general, the exporting nations in Asia appear to have given maintenance of domestic consumption priority over expansion of exports. However, if the Indo-Chinese attempted to maintain the prewar level of per-capita consumption, there would be no surplus for export. If the Koreans attempted to maintain the per-capita consumption rate of 1949, there would be no rice for export. The Burmese surplus for export probably would have been significantly lower in postwar years if internal per-capita consumption were to recover to prewar levels.12/

Apparent per-capita import deficits are shown in Figure 19, in which the upper line of each band is apparent per-capita disappearance, the lower line is per-capita production, and the difference is the apparent per-capita import deficit. In Japan, both per-capita production and utilization have declined. If prewar per-capita production were regained, there would be no deficit with current rates of per-capita consumption. Per-capita disappearance has declined more rapidly than per-capita production and, in consequence, the Japanese import deficit has narrowed sharply from prewar magnitudes. The Indonesian deficit per capita has always been small and seems to have been relatively stable. The narrow per-capita deficit in India has been kept stable by declines in utilization about equal to the per-capita falls in production. Per-capita deficits have been largest in Ceylon, with fairly stable per-capita production and sharp declines in per-capita disappearance resulting in a declining import deficit per capita.

Per-capita surpluses and deficits are summarized in Figure 21. The impact of postwar dislocations is obvious in both groups of nations. The potential for expanded per-capita consumption and for expansion of trade is clear.

12/ The Burmese surplus for export might not expand with increased production, for the people are now consuming the normal per-capita consumption of rice and the bulk of idle land is found in the exporting areas. The level of economic activity in Burma for the year ending September 30, 1953, was considerably higher than in the previous year. Foreign reserves increased at a record rate to a total of United States $260,000,000. Cost of living declined slightly. Rice production was about 9 per cent higher than in the preceding year. A favorable trade balance of United States $73,500,000 was achieved. Rice exports accounted for about 80 per cent of the foreign exchange earned.

have been very stable. In Denmark, Sweden and Switzerland they rose at about equal rates.

The effects could be seen in the rising volume of imports in figure 1. The sharp increase in 1951 is explained by the fact that many of the imports were stockpiled.

Despite the increased imports and domestic production, the per-capita supplies of meat declined. The decrease per-capita supplies has been relatively uniform over the past 40 years. The decline was not caused by a shortage of meat but by a drop in per-capita demand.

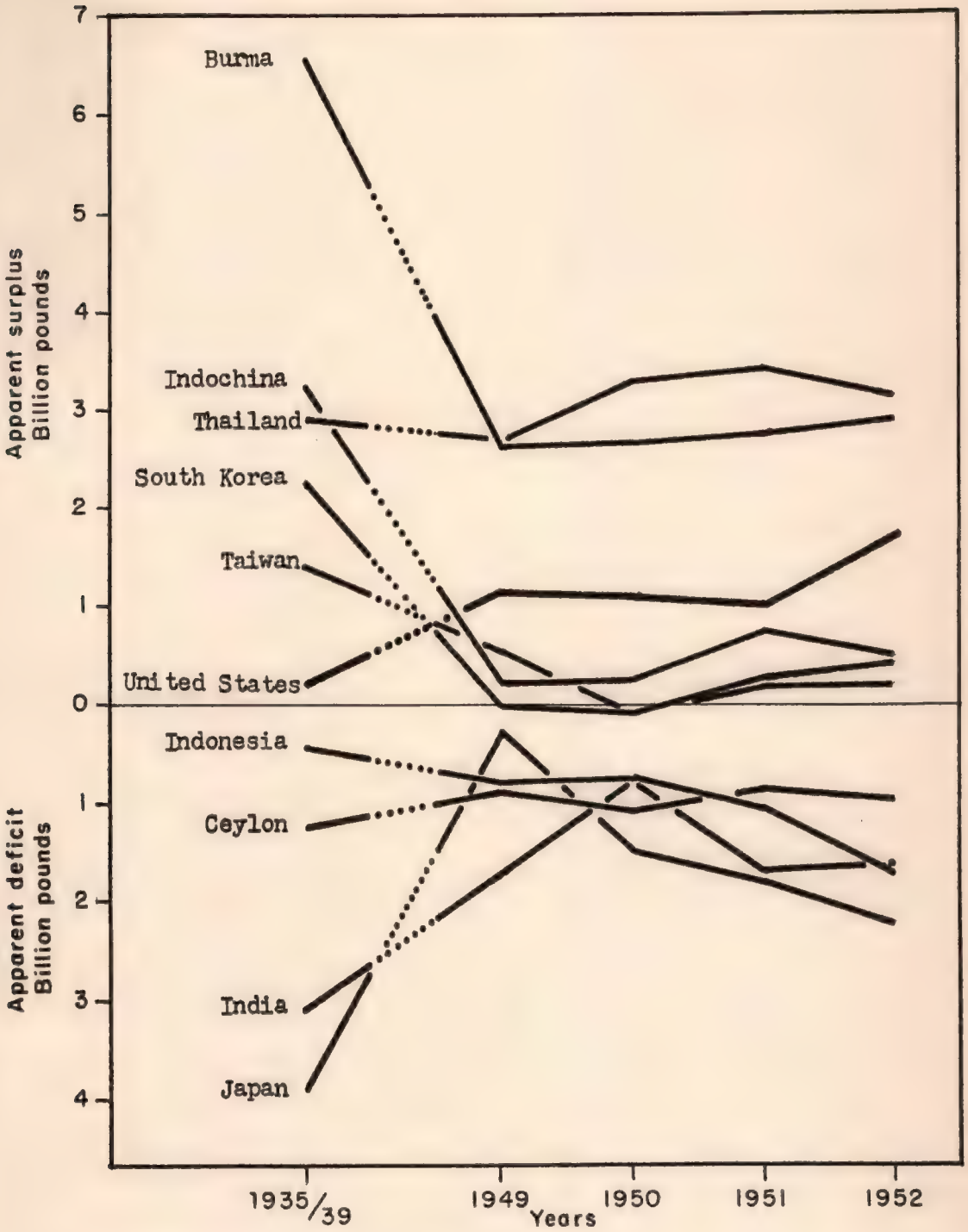
Because of increased production and imports, the total supplies of meat increased. The increase was not enough to keep up with the growth in population. Consequently, the per-capita supplies declined.

The decline in per-capita supplies of meat was not caused by a shortage of meat but by a drop in per-capita demand. Because of increased production and imports, the total supplies of meat increased. The increase was not enough to keep up with the growth in population. Consequently, the per-capita supplies declined.

The decline in per-capita supplies of meat was not caused by a shortage of meat but by a drop in per-capita demand. Because of increased production and imports, the total supplies of meat increased. The increase was not enough to keep up with the growth in population. Consequently, the per-capita supplies declined.

FIGURE 17

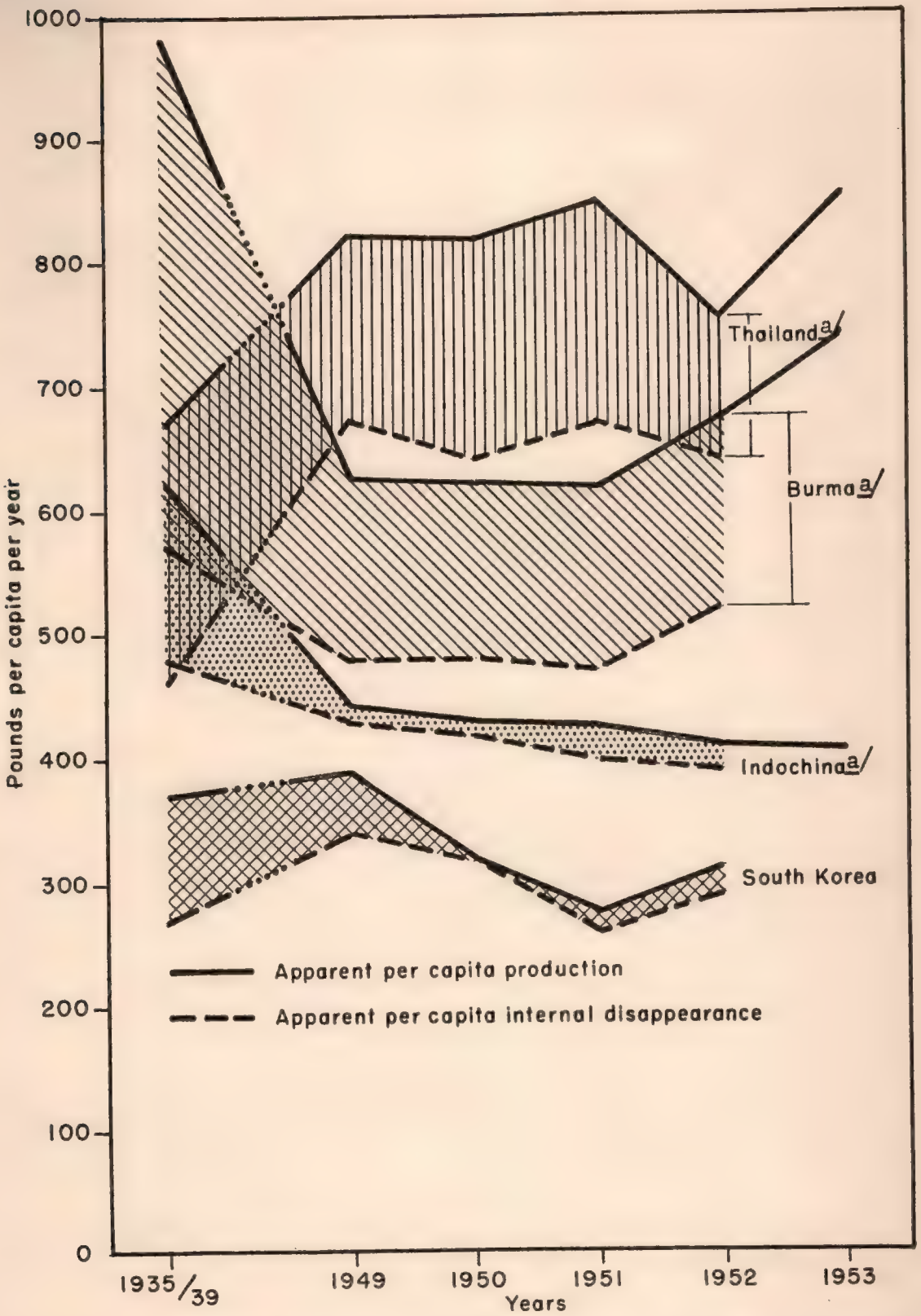
World Rice: Annual Production Minus
Annual Apparent Disappearance, Rough Basis,
Major Asiatic Nations and United States,
1935-1939 Average and 1949-1952 Annual



Sources: Tables 5 and 7.

FIGURE 18

World Rice: Per-Capita Export Surpluses, Rough Basis, Burma, Indochina, and Thailand, 1935-1939 Average and 1949-1952 Annual



a/ Apparent per-capita internal disappearance not available for 1953.

FIGURE 19

World Rice: Per-Capita Import Deficits, Rough Basis, Japan, Indonesia, India, and Ceylon, 1935-1939 Average and 1949-1952 Annual

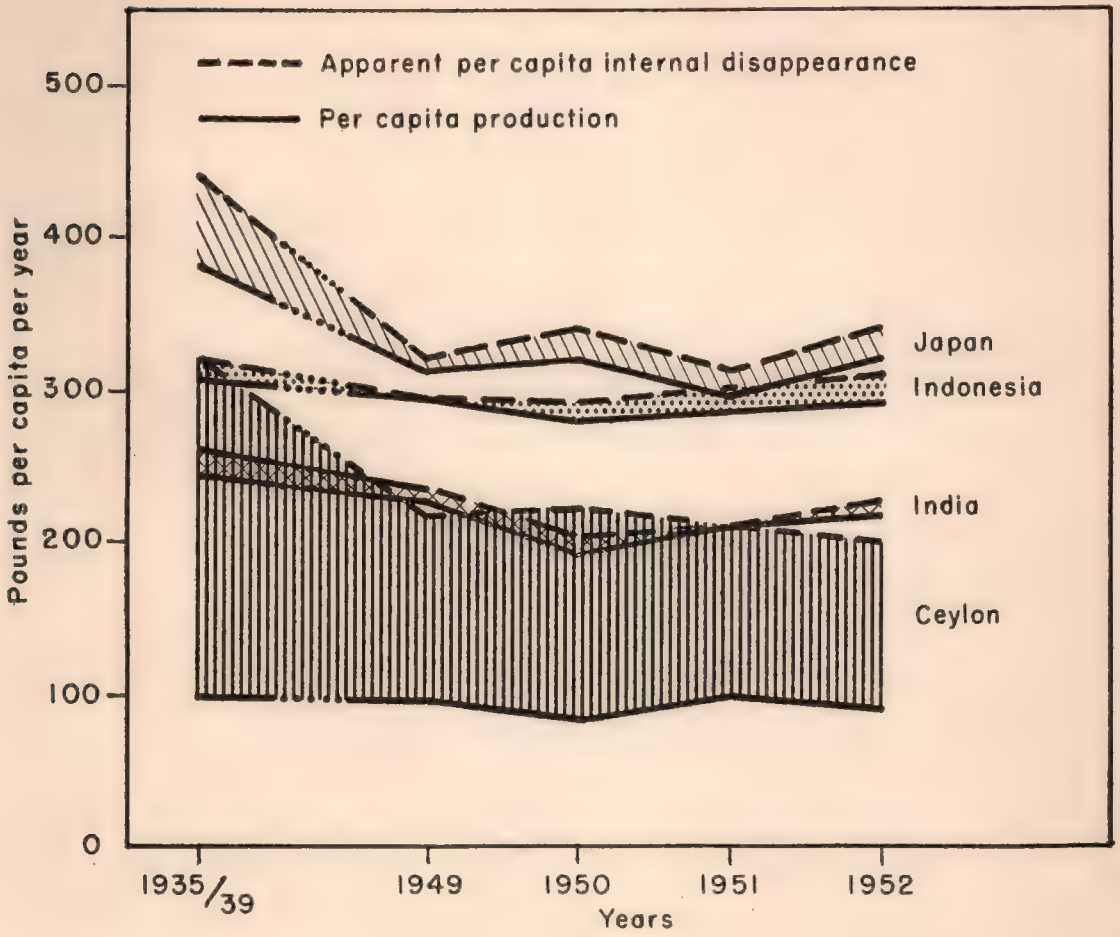
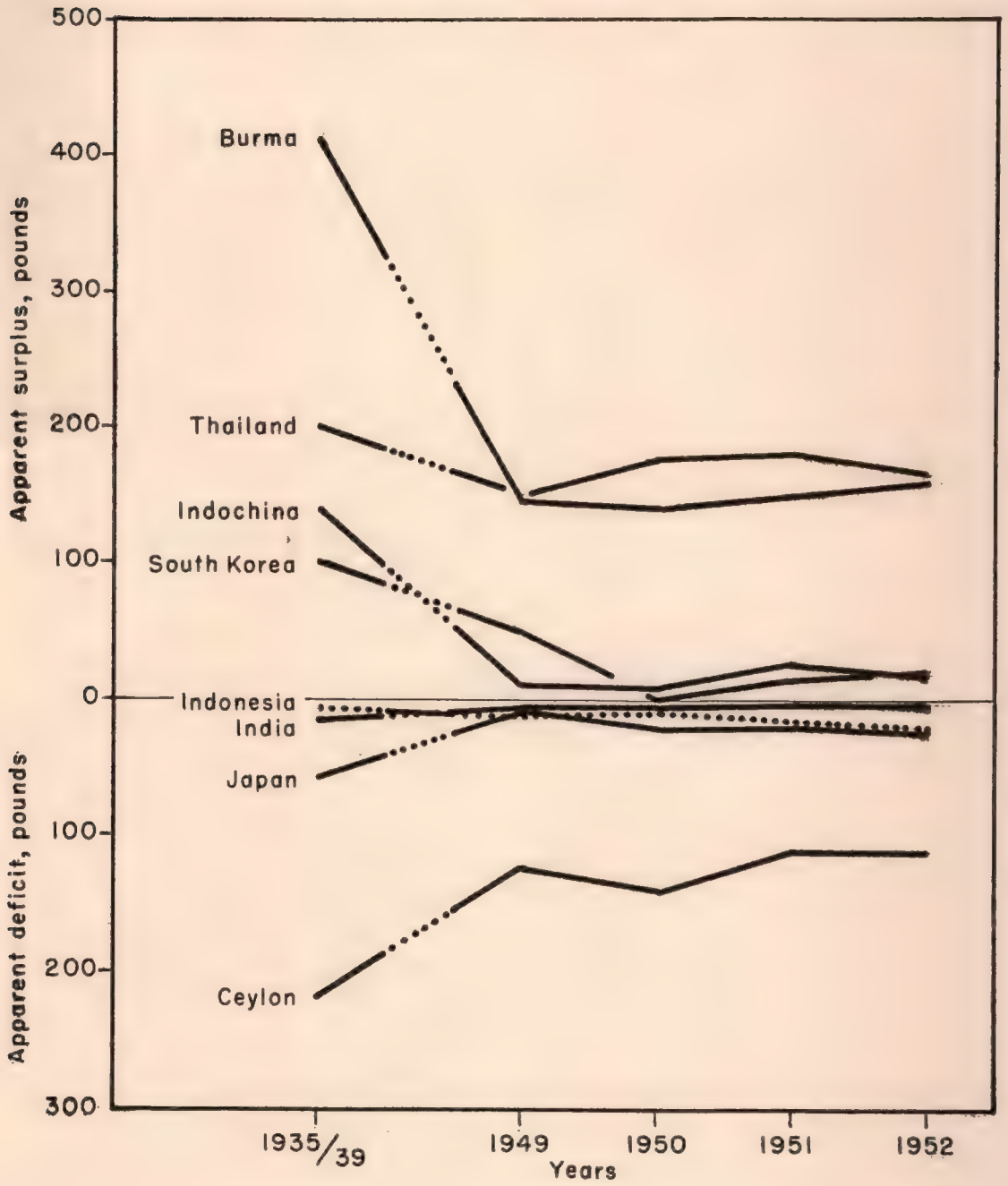


FIGURE 20

World Rice: Apparent Per-Capita Production Minus Per-Capita Disappearance, Rough Basis, Major Asiatic Nations, 1935-1939 Average and 1949-1952 Annual



Sources: Tables 6 and 7.

So long as per-capita production declines faster than the decreasing rate of production per capita, there will be a market for non-Asiatic rice in Asia. There seems little likelihood that Asiatic per-capita production can soon return to prewar levels given the continuous increase in Asiatic populations. However, it is equally doubtful that per-capita consumption rates will soon reverse the apparent downward trend of thirty years duration. Thus, prewar volume of foreign trade may not be reestablished. Available evidence does indicate that if American producers are able and willing to meet competitive prices and if Asiatic importers can obtain dollar exchange, there will be wants for American rice in Asia for some time into the future.

Prices.--The future volume and allocation of world trade in rice will largely be determined by a few factors: (1) relative demands among the several nations, (2) relative costs of production determined in the main by relative endowment of productive resources or by differential advantages in techniques of production, (3) transfer costs among the nations, and (4) availability of exchange depending either upon reciprocal demand in trade or upon abnormal sources of exchange.

Relative prices from 1934-1951 in the various nations are indicated in Table 11 and are charted in Figure 21. In many cases, prices are not directly comparable despite their translation into United States dollars per metric ton.13/ Neither types nor grades of rice are identical. More important, quoted prices in most cases represent price levels fixed by governments as one phase of stringent control over collection, internal distribution, and international trade in rice. Within these limitations, the differences in prices f.o.b. the shipping points indicate the relative differences in costs to importing nations. In general, Asiatic nations maintain significant advantage over the United States in Asiatic markets through lower transfer costs. Availability of foreign exchange has probably been a major determinant of the trade movements in the last several years.

Export Outlets for United States Rice.--The export market is probably the major determinant of the average annual on-farm price in the United States so long as the reflected world price at the farm level is above the United States support price--and so long as the United States supply exceeds the quantity which could be sold in domestic-territorial uses at a farm price equivalent to the reflected world price. More than half of the United States supply now goes into export channels. However, the United States export market, for practical purposes, has consisted since the war of only two large outlets: Cuba and Asia. Changes in export volumes are charted in Figure 22. Sales to Cuba expanded steadily between the end of the war and 1950. This is primarily a long-grain export market. In consequence, California production would probably find little outlet except at considerable price discount. However, prior analysis indicates that, if sales to Cuba by southern mills were to decline, the diversion of rice to markets now held by California would adversely affect on-farm price in California and the South about equally.

- - - -

[illegible] of per-capita previously declined further during the decade, [illegible] of production per capita, there will be a market for non-Asiatic rice in Asia. There seems likely to be a likelihood that Asiatic per-capita consumption can even [illegible] per capita [illegible] consumption [illegible]. However, so is equally doubtful that per-capita consumption rates will soon increase the apparent upward trend of thirty years duration. Thus, current volume of foreign trade may not be reestablished. Available evidence does [illegible] that U. American producers are able and willing to meet competitive prices and if Asiatic importers can obtain dollar exchange, there will be quite [illegible] in Asia for some time into the future.

Prices.--The future volume and allocation of world trade in rice will largely be determined by a few factors: (1) relative changes among the several [illegible], (2) relative ease of production determined in the main by natural [illegible] economical of productive resources or by differential advantages in technical [illegible] of production, (3) transfer costs among the nations, and (4) availability of exchange depending either upon governmental demand in trade or upon economic [illegible].

Relative prices [illegible] in the various nations are indicated in Table [illegible] and are charted in Figure 21. In many cases, prices are not directly comparable despite their translation into United States dollars per metric [illegible]. Various types and grades of rice are [illegible]. More important, [illegible] prices in most cases represent value levels fixed by governments as the [illegible] of stringent control over [illegible], internal distribution, and utilization. [illegible] In general, [illegible] availability of foreign exchange has probably been a major determinant of the trade movements in the last several years.

Export Prices.--The export market is probably the [illegible] as the reflected world price at the farm level is above the United States support price--and so long as the United States supply exceeds the quantity which could be sold in domestic-terminal use at a farm price competitive with the reflected world price. Here then is the United States supply not [illegible] to markets now held by California would adversely affect on-farm prices [illegible] and the levels about [illegible].

[illegible] exchange rates were changed.

TABLE 11

World Rice: Prices, Selected Nations, 1934-1951

Year	Brazil[a]	Burma[b]	Egypt[c]	India[d]	Indo-china[e]	Indo-china[f]	Japan[g]	Thai-land[h]	Thai-land[i]	United States[j]	United States[k]
	United States dollars per metric ton										
1934	1/	13			12	21	49	14	21	39	85
1935		17	54		16	27	54	18	30	35	97
1936		16	42		18	30	56	18	29	41	89
1937		17	52		19	31	59	23	33	32	68
1938	61	16	61	36	19	30	62	19	30	31	64
1939	52	17	49	39	14	23	74	15	24	36	73
1940	51	18	50	40	17	30	67	19	30	40	87
1941	78	21	53	48			77			67	136
1942	94		77	68						80	145
1943	100		99	198						87	146
1944	121		110	122						87	146
1945	146		121	111						88	158
1946	140	27	121	122				46	83	110	196
1947	141	44	128	134				80	142	132	291
1948	187	43	128	134	110	166		80	140	108	204
1949	250	39	108	122	118	184	83	71	121	90	175
1950	185	30	88	91	69	106	114	60	102	112	218
1951	185	30	84	91	75	112	134	63	93	106	218

(Continued on next page.)

[illegible]

Table 11 continued.

a/ Good-quality, clean agulha rice, wholesale at Sao Paulo, 1938-1940. From 1941, first-quality, long-grain rice bagged at Porto Alegre.

b/ Wholesale price of paddy at Rangoon. Government-fixed price since February, 1949.

c/ Average wholesale price at Cairo and Alexandria of hulled and bleached rice; from August, 1941, government-fixed price.

d/ Wholesale price for medium Grade B, Calcutta, coarse variety, 1942-1943; from 1944, government-fixed price.

e/ Wholesale price of paddy (rough) No. 1 Saigon.

f/ Wholesale price of rice No. 1, 25 per cent broken, hulled basis, Saigon.

g/ Price to producers for brown rice including straw bags; from 1939, government-fixed prices excluding shipping charges and early delivery and quota bonuses but including production bonuses.

h/ Wholesale price of paddy No. 1 Na Suan, Bangkok.

i/ Wholesale price of milled rice, 25 per cent broken, ex-mill at Bangkok excluding tax, gunnies, and export duty, 1950, 15 per cent broken rice.

j/ Average price received by farmers.

k/ Wholesale price of milled rice, extra fancy, New Orleans; Blue Rose, 1934-1947; and Zenith, 1948.

l/ Blanks indicate data not available.

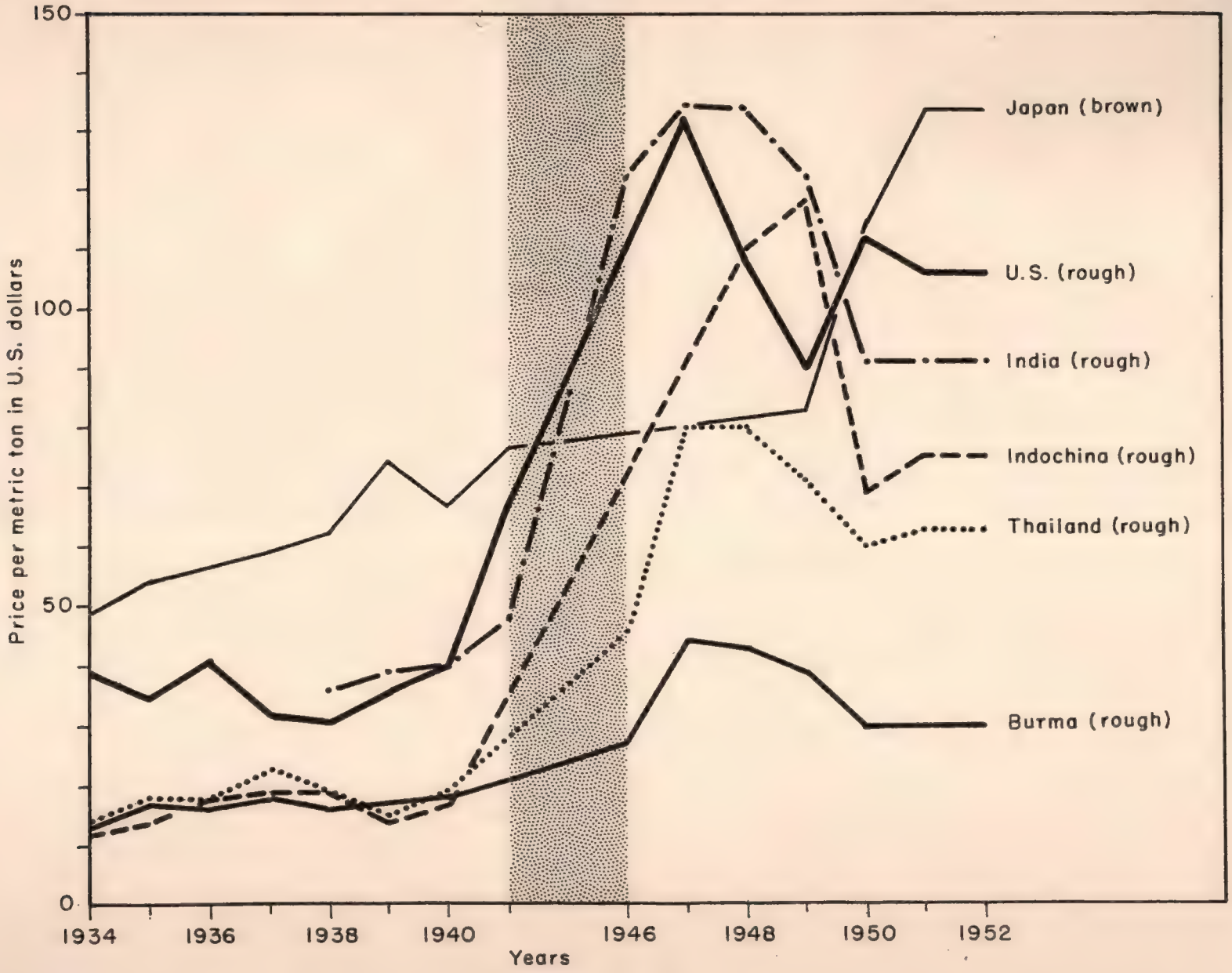
Source: Food and Agriculture Organization of the United Nations. Yearbook of Food and Agricultural Statistics--Production, 1952, pp. 216-217. Prices supplied in most cases directly by the respective countries in local currencies which are converted into United States dollars per metric unit. Conversion made on the basis of prevailing exchange rates. Wherever possible, the official exchange rates were applied.

Table 11 Continued

| | | |

FIGURE 21

World Rice: Average Annual Prices Per Metric Ton in United States Dollars, 1934-1941 and 1946-1952



Source: Food and Agriculture Organization of the United Nations. Yearbook of Food and Agricultural Statistics--Production, 1952. pp. 216-217.

The Asiatic market for American rice between 1945 and 1950 comprised sales to a very few nations: the Philippine Republic, China, Indonesia, and Japan. The markets were created by recurrent and discontinuous crises. Thus, in 1945 and 1946 and again, to a lesser extent, in 1948 and 1949, sales were made to the Philippines. Productive capacity in that nation had been ravaged by Japanese occupation. During the same years, sales were made to China while internal warfare existed in that nation. After cessation of the Chinese and Philippine crises, shipments were made to Indonesia. In 1950, United States exports to Asia were negligible. Asia as a whole was on a net export basis in rice in 1950, although the total volume of trade was still far below prewar magnitudes. Japan absorbed almost the entire volume of United States sales to Asia in that year. Thereafter, another series of crises occurred. By 1951, American exports to Asia reached nearly 11,000,000 sacks, milled basis. This represented sales to Japan; to Korea, which was at war; to Ceylon; and to Indonesia, which was recovering from internal conflict. In 1951-1953, those four Asiatic nations have absorbed almost the entire volume of American sales to Asia. The four Asiatic nations and Cuba have absorbed about 85 per cent of American exports. Adding the stable volume of Canadian sales, six nations purchase about 90 per cent of American exports.

Therefore, appraisal of the export market may be confined to analysis of demand conditions and prospects for dollar balances in those nations and to competition from Thailand, Burma, Indochina, and perhaps South Korea. Two overriding factors seem to be involved: (1) the apparent long-run decline in per-capita productive capacity weighted against the lesser apparent long-run decline in per-capita disappearance in Asia, and (2) the foreign exchange positions of the importing nations.

The Canadian market is stable. The Cuban market should have no serious dollar exchange difficulties. Development of internal Cuban rice production should not seriously limit the volume of imports from the United States for several years. Analysis of export outlook should, therefore, be directed primarily to Asiatic importing and exporting nations.

Intentions to produce, as reported to the 1953 Food and Agriculture Organization conference in Bangalore, indicate a 1956-57 production in Asia, excluding mainland China, some 22 per cent larger than the average in 1935-1939 and about 16 per cent above 1952-53. The Indian delegation forecasted self-sufficiency by the 1956-57 crop year. The Philippine Republic is self-sufficient. Indonesia has set a target date of three years for self-sufficiency. However, Asiatic population will probably be at least 30 per cent higher than its prewar level and per-capita supplies will, therefore, not be adequate to maintain present per-capita rates of consumption. Increases in projected rates of production in Asia do not seriously affect the general conclusion that--granted dollar availability--there should be a market for American rice in Asia at competitive world prices for at least several years.

1954 Outlook

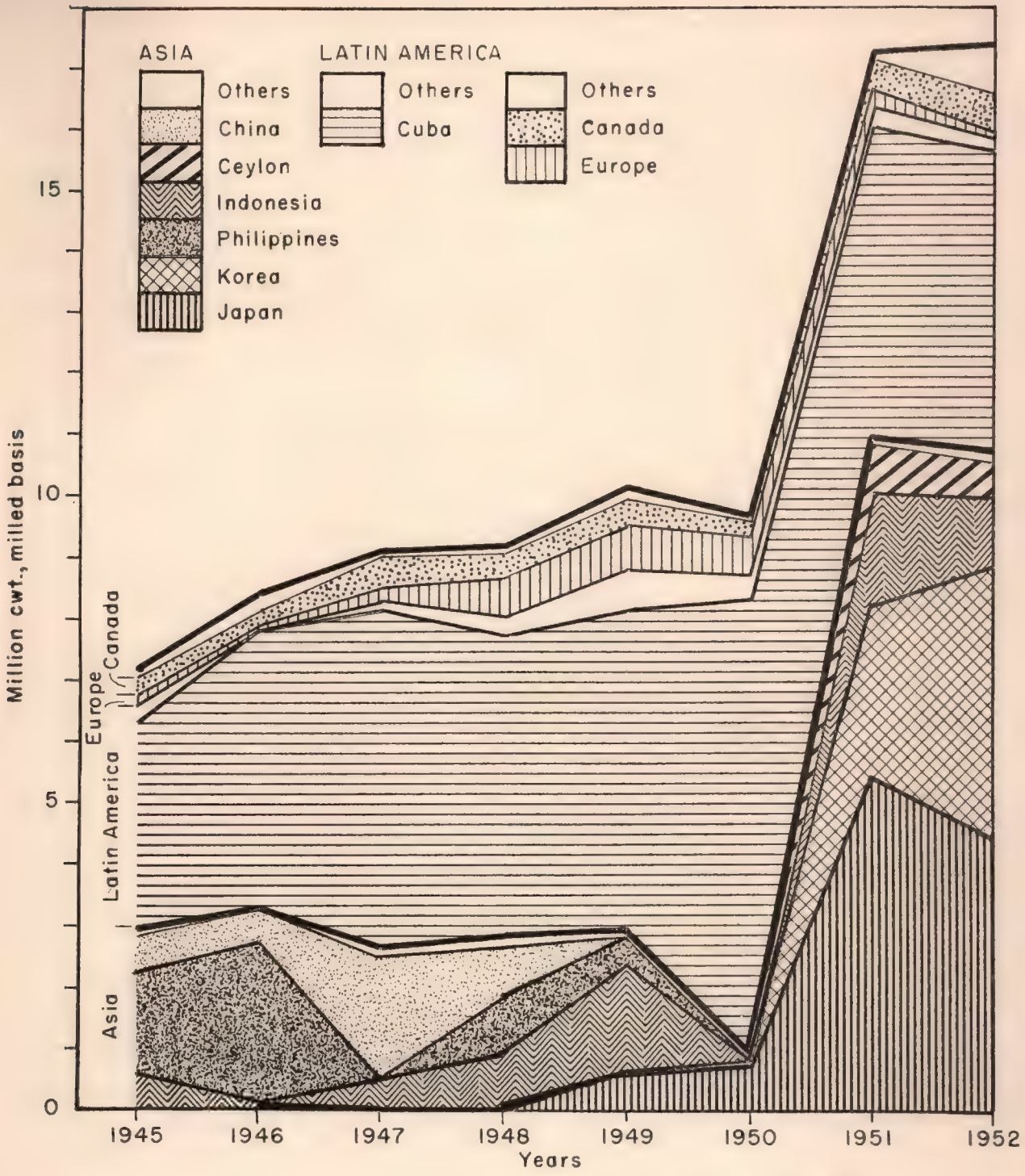
Supplies.--Larger export supplies are apparently available for 1954 both in Asiatic nations which export continuously or only in years of large yields. There seems still to be a good export demand for high quality rice. Riceland in Burma has increased by 500,000 acres and yields are up. Acreage is up, yields are down, and output is up a little over 1952 levels in Indochina.

The Australia market for American [illegible] and will continue [illegible]
to a very low [illegible] this Philippine [illegible], [illegible] Indonesia, and [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
and 1956 and again, to a lesser extent, in 1958 and 1959. Sales were hitting to
the [illegible] since. Productive capacity in that nation had been stymied by dep-
[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
Asia were negligible. Data as a whole was on a net export basis in that
[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] absorbed almost the entire volume of United States sales to Asia in this
[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
sales to Japan, to Korea, which was at war; to Ceylon; and to Indonesia, which
[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
amount to 50 per cent of American exports.

[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]

FIGURE 22

United States Rice: Exports by Destination, Milled Basis, 1946-1952



Source: Table 4, Giannini Foundation Mimeographed Report No. 162.

The Thailand crop of 5,900,000 short tons, milled basis, is a record. The aggregate exportable surplus for 1954 of the three rice bowl nations is a postwar record at 4,700,000 tons. This total, however, includes the 1,200,000 tons carry-over of low quality 1952-53 output in Burma and Thailand. Production of coarse grains and rice are both up about 2,000,000 tons in India. Pakistan reports a record crop. Ceylon is estimated to require 400,000 tons of imports in 1954. That nation has reexported 30,000 tons of rice to Japan from Red China and has made two rice agreements.

The 1953-54 estimated production in Burma, Thailand, and Indochina combined is 15,600,000 short tons, milled basis, against 14,200,000 in 1952. These data are shown in Table 12. Output is also estimated to be well up in nations which export only occasionally: a record crop of 2,500,000 short tons, milled basis, in the Philippines; 2,700,000 in South Korea with an export quota set at 150,000 tons; and an all-time high in Taiwan with 100,000 tons for export. There is an estimated crop of 7,700,000 short tons, milled basis, in Japan which, according to preliminary estimates, is down some 20 per cent below 1952 and is the lowest crop since 1934 (although the estimate was recently raised by 217,000 tons). The sweet potato and soybean crops are also down in Japan.

The 1953 volume of foreign trade in rice in Asia was apparently lower than in 1952. The following percentages of prewar exports were shipped: Burma, 33.7; Thailand, 95.9; Indochina, 12.4; Asia, 37.9; United States, 745.8; and the world, 54.5. The United States clearly capitalized on the drastic declines in exports from Burma and Indochina. The lower 1953 totals for Asia were, in part, attributable to withholding of more than 1,000,000 tons of 1952-53 production in Thailand and Burma. Including the 1952-53 carry-over, export availabilities for calendar 1954 indicate the following estimated percentages of prewar surpluses available for trade: Burma, 73.4; Thailand, 137.0; Indochina, 18.6; Asia, 72.5; United States, 762.7; and the world, 88.3. As a percentage of 1953 estimated availabilities, the projected export surpluses for calendar 1954 are as follows: Burma, 218.2; Thailand, 142.9; Indochina, 150; Asia, 191.4; United States, 102.3; and the world, 162.2. These tentative estimates also include 1,200,000 tons of Thailand and Burmese rice which will find a poor market. Some of this rice has recently been offered at £32 per ton without takers.

However, the almost inevitable conclusion is clear: there is opportunity for long-run marketing of United States rice in Asia, but neither the price in the 1954-55 crop year nor in most subsequent seasons can be expected to remain at the levels prevailing during the extreme postwar shortage in Asiatic export nations. Furthermore, the domestic price policy of the United States is such that a relatively small drop in the world price may for practical purposes close off export opportunities to American farmers. Rice which has gone to export would thereafter go to government storage.

The major determinants of the 1954 export outlook are the short crop in Japan, the availability of dollars in Japan, and the increase over last year in output in the three main exporting nations: Burma, Thailand, and Indochina. In 1952, crop increases centered in importing nations. Rice quality was low. World prices were high in 1953. World export surpluses available for trade movement for 1954 have been estimated at 7,800,000 short tons, milled basis, against 4,800,000 in 1953, an increase in export availability of about 60 per cent over the previous year. However, the former figure includes 770,000 tons

TABLE 12

World Rice: Production by Principal World Areas, Milled Basis, 1935-1939 and 1945-1949 Averages and 1951-1953 Annual

Area	Production				
	Averages		1951	1952[a]	1953[a]
	1935-1939	1945-1949			
	1,000 short tons				
Asia					
Burma	5,489	3,400	4,060	4,500	5,040
Thailand	3,356	4,192	5,600	5,094	5,880
Indochina	5,039	4,165	4,480	4,585	4,725
Total rice bowl	13,884	11,757	14,140	14,179	15,645
Other Asia	98,069	94,284	94,545	100,822	99,592
Total Asia	111,953	106,041	108,685	115,001	115,227
Western Hemisphere					
United States	729	1,153	1,488	1,581	1,668
Other Western Hemisphere	1,483	3,029	3,422	3,495	3,811
Total Western Hemisphere	2,212	4,182	4,910	5,076	5,479
Europe	778	715	1,073	1,213	1,264
Africa	1,735	2,710	2,702	2,639	2,788
Other countries	529	688	866	928	1,001
Total world	117,207	114,336	118,236	124,857	125,769

a/ Preliminary.

Source: U.S. Foreign Agricultural Service. World Agricultural Situation, January 14, 1954. p. 41.

TABLE 12

World Rice: Production by Principal World Areas, Milled Basis,

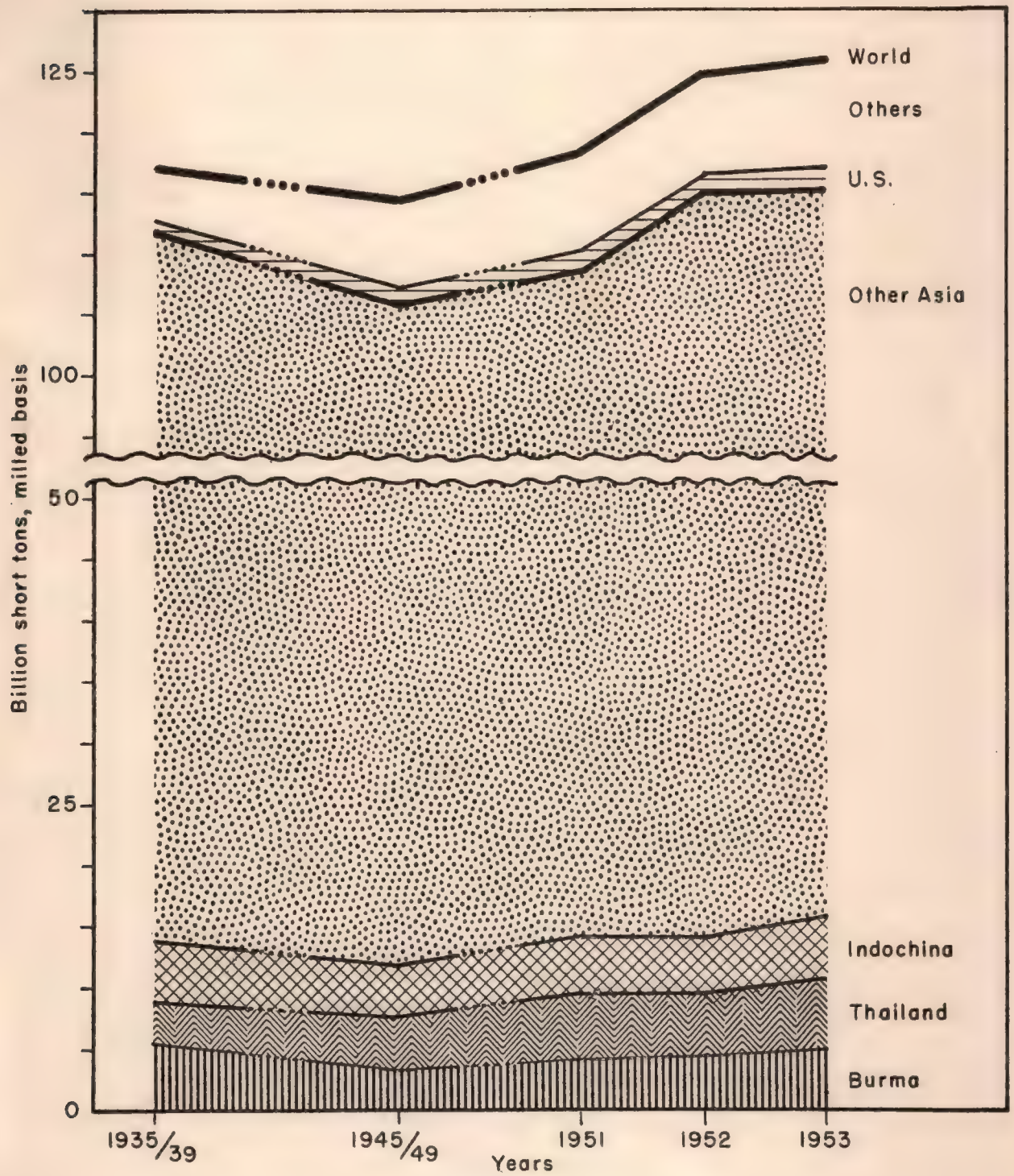
Asia	5,165	3,140	4,360	4,520	5,040
China	3,350	4,172	5,600	5,008	5,870
Thailand	2,039	1,457	1,460	1,585	1,725
Indonesia					
Other Asia	96,469	94,240	94,245	100,882	99,472
Total Asia	111,953	105,041	136,405	112,002	112,207
Western Hemisphere:					
United States	729	1,153	1,268	1,081	1,088
Total Western Hemisphere	2,242	4,182	4,520	3,476	
Europe	716	715	1,073		
		2,710			
Other countries	529	686	866	928	1,001
		118,336	114,230		

1/ Preliminary.

January 14, 1958 - P. 44.

FIGURE 23

World Rice: Production by Principal World Areas, 1935-1939 and 1945-1949 Averages and 1951-1953 Annual



Source: Table 12.

TABLE 13

World Rice: Exports in Principal World Areas, Milled Basis, 1936-1940 and 1946-1950 Averages, 1952 Annual, 1953 Estimates, and 1954 Export Supplies

Area	Exports				
	Averages				
	1936-1940	1946-1950	1952	1953[a]	1954[a]
	1,000 short tons				
Asia					
Burma	3,268	1,074	1,462	1,100	2,400
Thailand	1,460	960	1,574	1,400	2,000
Indochina	1,616	124	249	200	300
Total rice bowl	6,344	2,158	3,285	2,700	4,700[b]
Other Asia	1,936	71	381	435	1,300
Total Asia	8,280	2,229	3,666	3,135	6,000
Western Hemisphere					
United States	118	491	872	880	900
Brazil	42	161	238	--[c]	20
Other Western Hemisphere	47	135	140	192	190
Total Western Hemisphere	207	787	1,250	1,072	1,110
Europe					
Italy	168	89	304	440	500
Other Europe	6	9	81	83	100
Total Europe	174	98	385	523	600
Africa					
Egypt	138	274	18	--	--
Other Africa	17	16	52	50	60
Total Africa	155	290	70	50	60
Australia	15	32	22	30	30
Total world	8,831	3,436	5,393	4,810	7,800[b]

a/ Preliminary.

b/ Includes 1,200,000 tons of carry-over stocks from 1952-53, much of which is low in quality.

c/ Dashes indicate zero.

Source: U.S. Foreign Agricultural Service. World Agricultural Situation, January 14, 1954. p. 43.

Table 43

1957 Deliveries and 1958 Import Supplies

Burma	3,252	1,074	1,166	2,160
Thai Land	1,456	903	1,278	1,400
Indonesia	1,574	324	249	200
Total Free-World	5,344	2,108	3,295	3,760
Other Asia	1,292	71	321	1,360
Total Asia	6,250	2,250	3,560	5,120
	124	141	275	860
	42	181	208	20
Other Western Hemisphere	41	125	240	125
Total Western Hemisphere	207	317	1,250	1,272
	140	89	364	440
	6	9	81	260
Total Europe	146	98	345	523
	128	274	46	75
	17	16	52	60
Total Africa	145	290	70	50
	15	30	22	30
	6,613	2,982	5,293	6,950

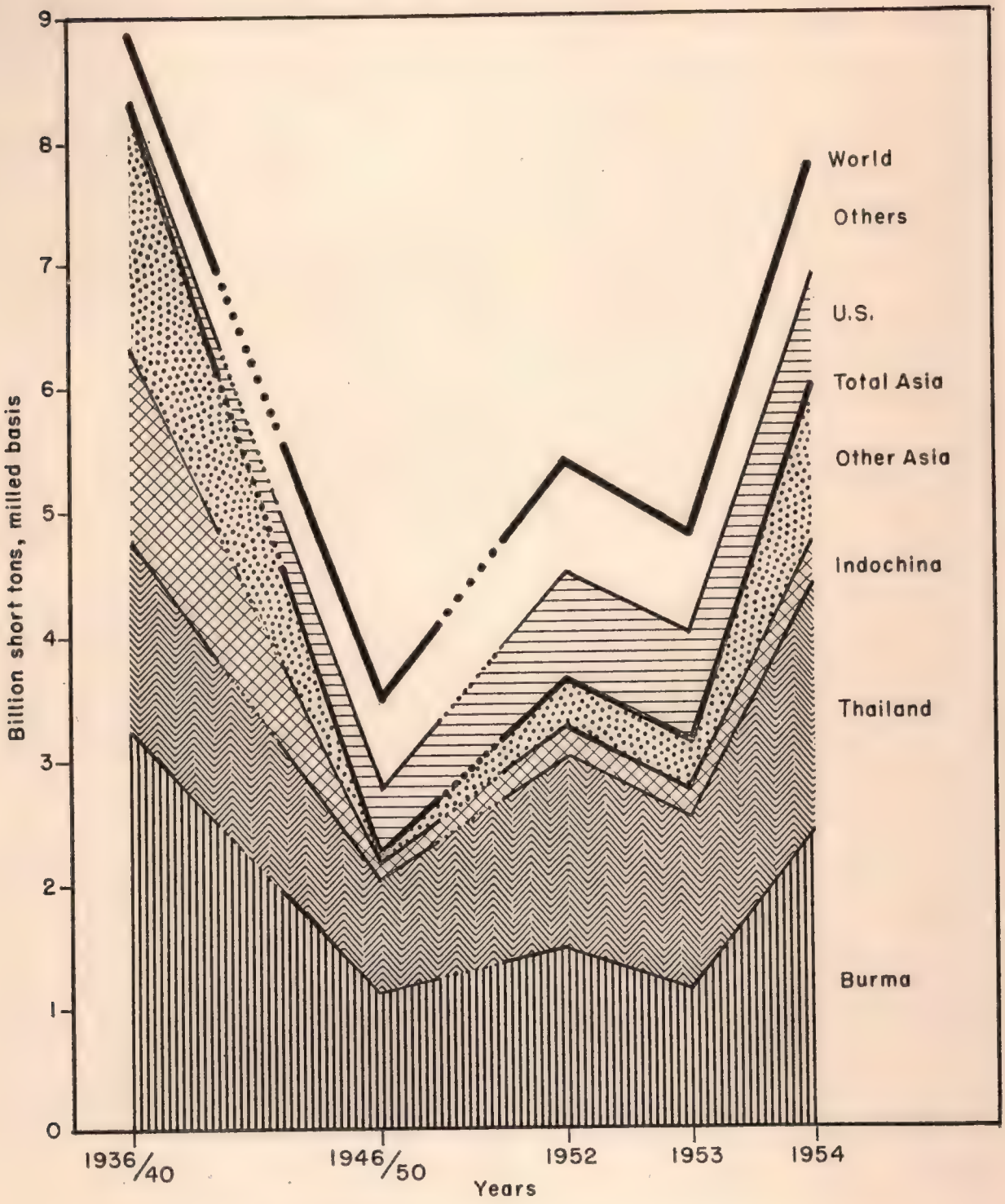
a/ Preliminary.

b/ Includes 1,200,000 tons of carry-over stocks from 1952-53, much of which is low in quality.

c/ Twelve months ended.

FIGURE 24

World Rice: Exports from Principal World Areas, 1936-1940 and 1946-1950 Averages and 1952-1953 Annual Estimates and Estimated Export Surpluses, 1954



Source: Table 13.

in Burma and 430,000 tons in Thailand of 1952 rice of low quality held over in an apparent expectation of significant rises in world rice prices. Estimated 1954 export surpluses have also been published for several nations which export only in years of good crops: China, 300,000 tons; Pakistan, 300,000 tons; Korea, 165,000 tons; and Taiwan, 100,000 tons, milled basis.

Including the Burma-Thailand carry-over, tonnage available for export is only 1,000,000 short tons, milled basis, less than the 1936-1940 average and more than twice the average annual volume available for trade in the five years after the end of World War II. These data are shown in Table 13.

Government Controls.--Collection, internal distribution, pricing, export, and import are under stringent government control in many nations.

Rice is collected in Burma by the State Agricultural Marketing Board, nominally without compulsion. Internal trade is private, although the Board holds down domestic price as necessary by sales out of storage depots at pegged prices. There is an official minimum price for paddy rice. Sellers of milled rice must show that the minimum price has been paid to growers. The Board maintains full control over exportation. Internal transportation is in the hands of government agencies.

Importation in Ceylon has been an outright government monopoly for ten years. Apparently some private trading was allowed after October, 1953, but all offers required approval by the Food Ministry. The Ceylonese government strongly advocates government control of the rice trade in all nations to prevent speculation with international trade under allocations and on a government-to-government basis.

About half of domestic rice production in Cuba is short-grain, hand-harvested varieties, although the government is shifting toward long-grain varieties appropriate to mechanized handling. The government provides some harvesting machinery. There is also public storage capacity. Imports are on a quota basis. The Ministries of Agriculture and Commerce agree annually upon the magnitude of national consumption and production. There is a basic low-tariff import quota of 3,250,000 Spanish quintals (about 330,000,000 pounds), which is adjusted annually in terms of the difference between the consumption target and the national production.

Food controls in India include government procurement of rice. Prices are set by quality differentials and rice is rationed. All imports are on government account. Within the last few weeks, there has been some relaxation of control.

Indonesia annually imports about 600,000 tons of milled rice and produces about 13,000,000 tons of stalk paddy. There is presently a government campaign to improve production practices and thereby to cut down imports. Apparently there will be effort to develop domestic distribution of rice in paddy form.

Domestic rice is collected by the Japanese government through several methods. Government sells to the wholesale trade which distributes on a consumer rationing system. There are more than 500 branches of the Food Agency and more than 3,500 sub-branch offices. Internal transportation is either in government hands or is government supervised. Government is the sole purchasing agent of imported rice. The licensed importer makes purchases nominally at

Importation in Ceylon has been an outright government monopoly for ten years. Apparently some private trading was allowed after October, 1953, but all offers required approval by the Food Ministry. The Ceylonese Government strongly advocates government control of the rice trade in all nations to prevent speculation with international trade under allocations and on a government-to-government basis.

About half of domestic rice production in Cuba is short-grain, hand-harvested varieties, although the government is shifting toward long-grain varieties appropriate to mechanized handling. The government provides some big magnitude of national consumption and production. There is a basic [illegible] import quota of 3,250,000 Spanish quintals (about 250,000,000 pounds), target and the national production.

ment account. Within this last ten weeks, there has been some relaxation of control.

to improve production practices and thereby to cut down imports. Apparently

his own risk and then sells to the Food Agency.14/ Ordinarily, the Food Agency consents to buy imported rice at the time the importer contracts for its purchase. Foreign exchange is also controlled. The foreign exchange budget is formulated semiannually to facilitate the foreign exchange management. Allocation of a foreign currency quota must be obtained by importers from the Minister of International Trade and Industry after consultation by him with the Minister of Agriculture and Forestry.

Rice is rationed in Malaya and price is controlled. Imports are in government hands. Internal trade in Pakistan is apparently private. Shortage of river craft for collection and the Viet Minh rebel activities have limited Viet-Nam exports. Exports go first to designated "First Sector" countries mainly in the French Commonwealth and then to all others if stocks are available. Rice products are generally freely exportable. Price is controlled. About 85 per cent of exports from Thailand are handled on a government-to-government basis.

Full impact of the apparent increases in export surpluses has not yet registered in world prices. However, in October, 1953, the Burmese government agreed to deliver an annual minimum of 200,000 metric tons to the Ceylonese government at the following prices per metric ton, f.o.b. Rangoon: 1954, £50 ($138); 1955, £48, ($132); 1956, £46 ($127); and 1957, £44 ($121). The Burmese have also agreed to increase annual deliveries in any contract year to 600,000 metric tons if notice of intent to increase purchases is received from the Ceylonese by November 15 of the preceding year. Mainland China, through a rice-rubber barter deal in which relative prices are only nominal, has contracted to sell 270,000 metric tons to Ceylon in 1954 at £47 or $130 f.o.b. China ports. These two contracts assure supplies in excess of ordinary Ceylonese requirements.

The short crop in Japan may be one of the factors holding present price levels. A major short-run price determinant will be the amounts of wheat, barley, and other cereals imported by the Japanese government to supplement the obviously short supply of rice. In the last quarter of 1953, the following prices per metric ton prevailed in Japan, C.I.F., among different origins of rice: United States, $199-204; Burma, private, $190; Thailand, government contract, $170; Thailand, private, $192; Italy, $203; Indochina, $194; and Ceylon, $179. The price from Taiwan (about $210-220) was higher than the Japanese price of United States rice, but there is a barter agreement between Japan and Taiwan and relative prices may not be meaningful. It is reported that the Japanese turned down offers from Iran at $158 per metric ton, C.I.F., Yokohama. There are other still inconclusive evidences of softening international prices. Burma rice is apparently being offered at £53-55, C.I.F., United Kingdom with buyers' bids somewhat lower. Official prices had not been announced at the end of January, 1954 for new crop rice, but buyers' bids were considerably below opening offers. Apparently 1952-53 crop Burmese rice has been offered on the same terms at £32 without buyers. Saigon shipping has apparently been limited with offers at £66 delivered United Kingdom per 1,000 kilograms. Opening quotations in Saigon markets, like those in other shipping areas, met buyer resistance. Shippers' quotations seem to anticipate an easier

- -

14/ In 1953, there were six import agencies licensed for the purchase of California rice and six for Southern rice.

1/ In 1953, there were six import premiums increased for the purchase of California rice and six for Southern rice.

market. It is reported that British territories in Southeast Asia have already contracted for 276,000 long tons of Thailand rice with option up to 450,000 tons for this year. Quotations are holding in Thailand. Exports from that nation in calendar 1953 aggregated 1,336,220 metric tons, but a total of more than 1,000,000 tons was represented by sales to Japan, Malaya, Hongkong (transit), and Korea in that order.

There have been reports in the London market that Japan has contracted for 300,000 tons of Burma rice at $140 per metric ton net f.o.b. for Ngatsein S.M.S. 42 per cent broken. Negotiations between Japan and Thailand for an additional 50,000 tons for December, 1953 delivery on government basis and 50,000 additional tons on free basis were reported to have taken place. Sale of 10,000 tons of Italian rice to Japan was reported and negotiations for an additional 50,000 tons from Saigon were reported. The general tone appears to be one of great caution with bids running significantly below the opening offers of Asiatic sellers.

1954 Demand in Importing Nations.--The food situation in the world at large has improved materially over last year for the sixth consecutive year. Indices of per-capita agricultural output are nearly at prewar levels. The general world outlook for foodstuffs as a whole seems to suggest maintenance of present consumption levels with some increase in trade. Supplies are greater in total for all foods, including rice. Two conclusions normally could be drawn: (1) world prices will be lower for rice, and (2) the volume of foreign trade will expand. Prices should fall unless there are increases in purchasing power among importing nations. Trade should increase if exchange is available for means of payment. The major issue is the ability of the United States to maintain the 1952-53 export volume of 26,900,000 sacks, rough basis, distributed approximately as follows: Cuba, 7,500,000; Japan, 6,700,000; Korea, 6,900,000; Indonesia, 1,700,000; Ceylon, 1,000,000; Canada, 900,000; and others, 2,200,000.

Available data now indicate no major changes in the demand structure or in levels of purchasing power among the non-Asiatic channels to which the United States rice crop has gone in recent years. There are no indications of significant declines in consumer purchasing power in the United States domestic-territorial markets. Demand appears to be stable at a level reflecting no more than a 5-per cent decrease in consumer spending power. All economic indicators in Canada have recently been stable at about 1952 levels. There seems to be no reason to expect significant changes there. There is some indication that the controlled crop of sugar in Cuba will yield somewhat smaller than 1952 returns. Further, an increase in Cuban rice acreage is expected. Exports of rice to Cuba from the United States can be expected to approximate the 5,000,000 bags shipped there last year. It has been reported that Cuba is considering granting the extra quota of 1,500,000 pocketas.

The small rice crop in Japan seems to offer greatest prospect for the United States to compete in Asia against Asiatic production in 1954. The dollar earnings of Asiatic nations as a whole show no improvement, however. Cotton production is about back to prewar levels. Copra and jute production are down. Tea output has been stable. Prices for most Asiatic export commodities have stabilized at levels well below the high points of the Korean War. One of the most important dollar earners in the Far East is rubber. By November, 1953, prices in Singapore had fallen about 31 per cent below prices prevailing one year earlier. There have been similar declines in tin prices.

others, 2,200,000.

ment declines in consumer purchasing power in the United States domestic-
further, an increase in Cuban rice acreage is expected. Exports of rice to
ing the extra quota of 1,500,000 pockets.

The small rice crop in Japan seems to offer greatest prospect for the
United States to compete in Asia against Asiatic production in 1951. The
are down. Tea output has been stable. Prices for most Asiatic export commod-

There have been reports in the London market that Japan has contracted for
42 per cent broken. Negotiations between Japan and Thailand for an additional
30,000 tons for December, 1952 delivery on government basis and 50,000 addi-
tional tons on free basis were reported to have taken place. Sale of 10,000
tons of Italian rice to Japan was reported and negotiations for an additional
50,000 tons from Saigon were reported. The general tone appears to be one of
great caution with bids running significantly below the opening offers of
Asiatic sellers.

Large has dropped materially over last year for the ninth consecutive year.
Indices of per-capita agricultural output are nearly at pre-war levels. The
in total for all foods, including rice. Two conclusions normally could be
drawn (1) world prices will be lower for rice, and (2) the volume of foreign
trade will expand. Prices should fall unless there are increases in purchasing

Prospects for imports of rice appear to be lower in India. Pakistan may be on a net export basis. Ceylon appears to have an exchange position sufficient to finance imports of about as much rice as was purchased last year. A five-year barter agreement reached with China in 1953 and a four-year agreement with Burma should provide ample supplies. Malaya is expected to import about 500,000 tons, milled basis, a little less than last year. The Philippine Republic will probably not require rice imports in 1954. Indonesian imports of rice are expected to run about 400,000 tons or about one half of the 1952 volume. The dollar exchange positions of Malaya and Indonesia appear to have deteriorated in recent months.15/ The Japanese government apparently plans to import about 1,145,000 tons for the 1954-55 fiscal year beginning in April. First plans were to import 1,400,000 tons over the 1953-54 November-October year. This budget has since been increased to 1,600,000 tons for November, 1953 through October, 1954. Again, there is evidence of increasing difficulty in the Japanese exchange position.

In short, even discounting the 1,200,000-ton carry-over from 1952 in Burma and Thailand, export availabilities in Asia apparently greatly exceed import expectations at present prices. Record rice stocks are reported in Saigon-Cholon. Indo-Chinese retail prices are only a little above official levels. Export embargoes are being relaxed. Viet-Nam sales to Cambodia are rising. Cambodian mills have been returned to private hands. Further, there is clearly no evidence of sufficient improvement in purchasing power or exchange balances to move present larger export availabilities of rice into Asiatic trade at 1953 price levels. Expected import volume for Canada, Cuba, Ceylon, Malaya, Indonesia, and Japan aggregate about 3,500,000 tons. Deducting the 1952 carry-over, export availabilities from Asia leaves approximately 4,800,000 tons of 1953-54 rice available. There seems to be no reason to expect sufficient increase in imports by other nations to offset this difference. Thus, there seems to be a long-run potential for continued United States exports to Asia as Asiatic population continues to increase at a faster relative rate than Asiatic rice production. This assumes continued means to finance such sales. It also assumes sales at declining world prices. There appears to be possibility that present export price levels cannot easily be maintained indefinitely through 1954. If early reports of Asiatic export potentials are reasonably accurate, export price levels should soften significantly during 1954.

For the United States, the immediately important question is whether export prices fall sufficiently to reflect a decrease in the average annual farm price in the United States to the 1954 support-price level of about $4.80 per hundredweight, rough basis, which would reflect roughly 90 per cent of parity price. The locational differential in the support price means an average of $4.55-4.60 in California. If California price should fall to $4.40 for paddy, the support would probably catch hold. There is considerable possibility that such a minor fall in world prices may occur. In this event, domestic-territorial consumption would increase by about 3,500,000 sacks, rough basis. The remainder of the 1954 crop would probably be diverted to support storage through Commodity Credit Corporation operations.

- -

15/ Indonesian accounts outstanding against the United States range only about one fourth of the amounts outstanding in 1951. Malaya has a favorable but declining dollar balance as rubber and tin prices decline.

For the United States, the immediately important question is whether export prices fall sufficiently to reflect a decrease in the average annual farm price in the United States to the 1953 support-price level of about $2.50 per hundredweight, rough basis, which would reflect roughly 90 per cent of parity price. The locational differential in the support price means an average of $2.55-1.60 in California. If California price should fall to $1.40 for paddy the support would probably catch hold. There is considerable possibility that such a minor fall in world prices may occur. In this event, domestic-territorial consumption would increase by about 3,500,000 sacks, rough basis. The remainder of the 1953 crop would probably be diverted to support storage [illegible].

1/ Indonesian exports exceeding normal [illegible] about one fourth of the amounts outstanding in 1952. Malaya has a favorable but declining dollar balance as rubber and tin prices decline.

The Japanese Market.--Exports in 1954 from the United States, and particularly from California, will depend to a major degree upon the policies followed by the Japanese government. Since the end of the war, Japan has suffered a continuing and large deficit in dollar trade. Extraordinary expenditures for occupation and Korean War expenses have almost exactly balanced the dollar deficit in trade. Both sources of unusual earnings will probably be smaller in the immediate future. The internal fiscal stability of Japan has apparently deteriorated drastically in recent months.

There are still nearly $2,000,000,000 of claims against Americans in Asia. Nearly $900,000,000 are held by Japanese. Thus, there is immediate exchange available for dollar purchases. But, in terms of earned exchange against dollar nations, Japan is bankrupt and has, in fact, been so since the end of the war. Value of exports to the United States has run as low as 4 per cent of the value of imports from the United States and presently Japanese exports to the United States are running about one third of the value of United States imports from Japan. The extraordinary sources of exchange by which these deficits have been met are being curtailed sharply as military and occupation activities decline. Thus, maintenance of the Japanese market for United States rice shippers may ultimately necessitate extension of dollar assistance to Japan, barter arrangements, payment in nondollar currencies, or other adjustment. Political pressures may require that the Japanese rice ration be maintained.

Japanese rice production has not increased significantly above the 1931-1940 average levels. Wheat output has also been stable at about one ninth of rice tonnage. Naked barley production has increased about one third. Major increases in production have occurred in both sweet and white potatoes. However, the increase in production of all staples--and of all foods as well--has been considerably less than the increase in population since the prewar decade. Rice acreage has been somewhat lower than prewar. There have been relatively minor increases in land used for production of wheat, barley, and naked barley. Substantial increases have occurred in potatoes. Total acreage used for staples is only a little greater than prewar and total acreage for all foods is in fact down somewhat. The gap between indigenous supplies of food and minimal requirements has narrowed since the 1945 maximum but is still substantial.

The food policy of the present Japanese government has been indicated recently.16/ Loss of the captive economies of Korea and Taiwan has cut down Japanese supplies by about 2,250,000 tons yearly. Population has increased sharply. The Ministry of Agriculture hopes to eliminate both the compulsory collection system and the subsidies on rice. Food policy is apparently being reformulated. Contemplated reduction of internal subsidies on cereals has already been announced. The Japanese expect much easier export supplies in Asia in the future. They believe, however, that bloc purchases by their government may hold prices up. Therefore, they intend to minimize rice imports and to expand imports of wheat and barley. Wheat can be imported at $90 per ton against $213 for rice. Consideration is being given to methods of rice rationing which might make it possible to avoid rice imports and to supplement

---

16/ Interview with S. Hori, Minister of Agriculture and Forestry, Mainichi, Tokyo, January 6, 1954.

policy of the present Japanese government has been indicated
by about 2,250,000 tons yearly. Population has increased
The Ministry of Agriculture hopes to eliminate both the compulsory

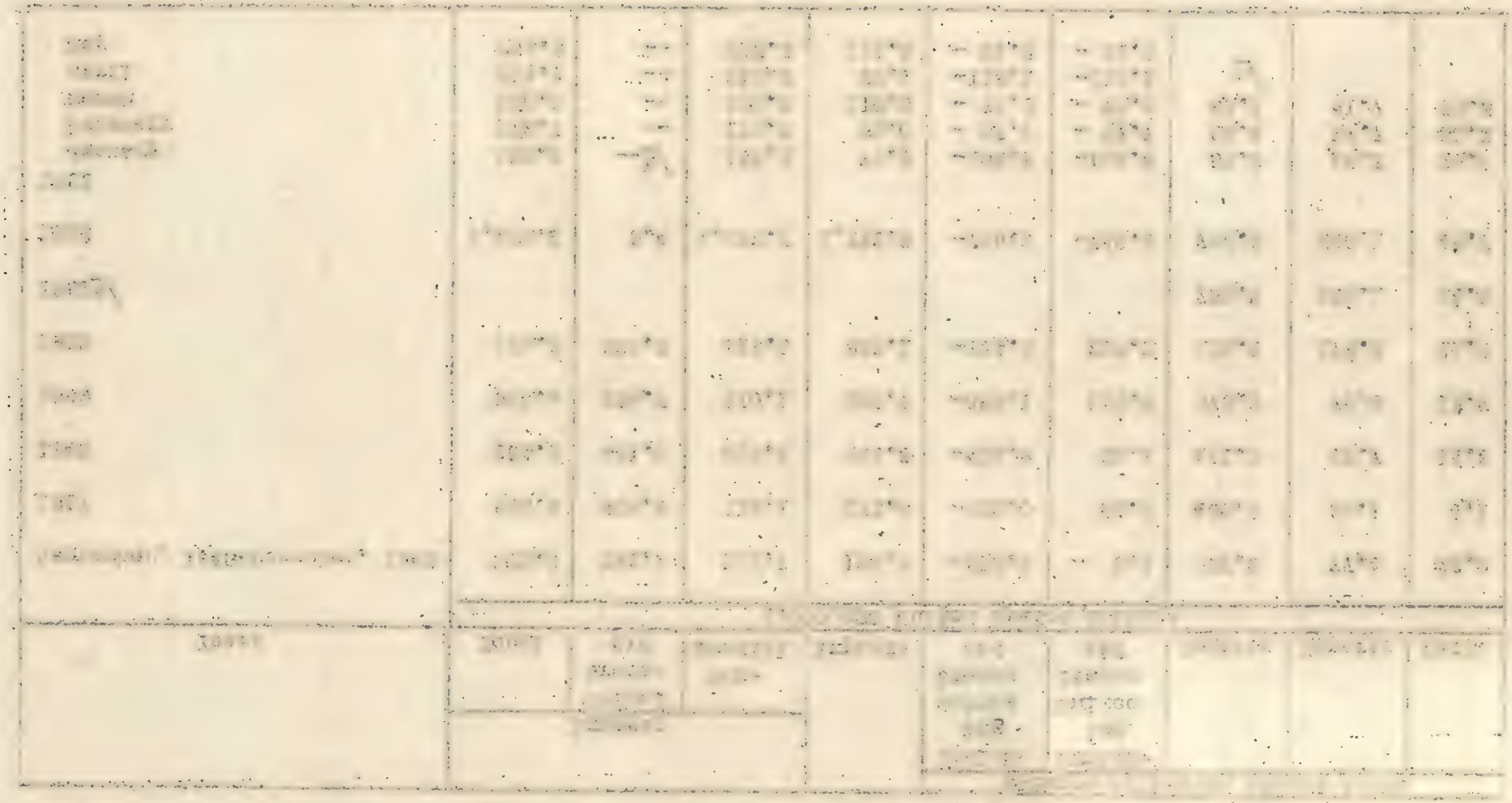
TABLE 14

Japanese Rice: Value of Merchandise Imports and Exports and Balance of Merchandise Trade, 1945-1953

Years	Imports			Exports	Balance of United States trade				
	Total	United States aid	Commercial		Including United States aid	Excluding United States aid	Imports	Exports	Ratio
	1,000,000 United States dollars								
September, 1945-December, 1946	305.6	192.9	112.7	103.3	-202.3	- 9.4	297.9	77.4	26.0
1947	523.5	404.4	119.1	173.6	-350.0	54.5	480.9	20.1	4.1
1948	684.2	461.0	223.2	258.3	-425.9	35.1	441.9	65.7	14.8
1949	904.8	534.7	370.1	509.7	-395.1	139.6	575.0	79.0	13.7
1950	974.3	361.3	619.0	820.1	-154.3	207.0	428.5	179.3	41.8
1951[a]							753.7	184.1	24.5
1952	2,028.2	5.4	2,022.7	1,272.9	-755.2	-749.8	728.3	340.1	46.7
1953									
January	188.2	--[b]	188.2	79.6	-108.6	-108.6	57.6	15.3	26.5
February	172.7	--	172.7	85.0	- 87.7	- 87.7	58.4	17.7	30.3
March	186.6	--	186.6	110.9	- 75.6	- 75.6	65.1	21.7	33.3
April	214.2	--	214.2	96.1	-118.1	-118.1	[c]		
May	203.3	--	203.3	111.8	- 91.5	- 91.5			

[a] 1951 data not comparable.
[b] Dashes indicate zero.
[c] Blanks indicate data not available.

Source: Japanese Economic Statistics Board. Japanese Economic Statistics Bulletins 80-81, Section II, April-August, 1953.



cereal rations with imported wheat and barley, which are deemed a "safety valve" in food policy. Experiments continue with synthetic rice extenders, although consumer reception has not been favorable. Trade and barter agreements for Southeast Asia rice will be honored, but emphasis will be placed on wheat and barley. The Ministry of Agriculture and Forestry has insisted on maintenance of the rice ration, now a 14-day supply in each month. The Ministry of Finance has insisted upon wheat and barley imports to save exchange.

The proposed schedules for 1954 imports of grains in 1,000 tons, milled basis, of the two ministries are as follows:

1954 Japanese Fiscal Year

Commodity	Ministry of Finance	Ministry of Agriculture and Forestry
Rice	1,000	1,380
Wheat	2,548	1,980
Barley	1,033	1,130
Total	4,581	4,490

The differences between the two ministries appear to have been reconciled. The budget for April, 1954-March, 1955, as informally announced, envisages imports of 1,145,000 short tons of rice, broken down as follows: (1) short-grain rice--United States, 100,000 tons; Europe, 100,000 tons; and others, 80,000 tons; (2) long-grain rice--United States, 100,000 tons; Burma, 300,000 tons; Thailand, 260,000 tons; Indochina, 50,000 tons; Pakistan, 40,000 tons; and others, 25,000 tons; and (3) broken rice, 90,000 tons. The budgeted imports for April-September are not yet announced, but a maximum of 500,000 tons is assumed. As noted above, the budgeted rice imports for November, 1953-October, 1954 were 1,600,000 tons, up from an original announcement of 1,400,000 tons.

Press releases from Tokyo on February 5, 1954 indicate that plans are being completed for disposal of $50,000,000 of surplus United States grains in Japan dispatched under Section 550 of the Mutual Security Act.17/ Rice is not now included. Rice prices are still at or near parity and it may be doubtful that this product could effectively be listed as in surplus under present administrative interpretations of that amendment.

Several lines of action seem suggested: determination of the preferences of the Japanese government for various types of rice or various terms of delivery; negotiation with respect to quantities which the Japanese might be willing to take at alternative prices; and possible means to finance extraordinary exports of rice to Japan or to other Asiatic importers. The alternatives to maintenance of the Japanese outlet seem clearly to be the diversion of large

- -

17/ In the first week of March, 1954, a four-year agreement between Burma and the Ryukyu Islands was reported to have been consummated and to include the following terms: 1954-55, 40,000 tons Ngatsein S.M.S. 42 per cent broken at $140 per metric ton, f.o.b., shipping-weight basis, with payment in dollars; and 30,000 tons yearly in each of the following three years. Supplies and prices appeared to be easing in international markets but no major indication of softening had yet appeared in United States markets.

[illegible] basis, of the two ministries are as follows:

[illegible]

The difference between the two ministries appear to have been reconciled. Imports of 1,115,000 short tons of rice, broken down as follows: (1) short-[illegible]. (2) Long-grain rice [illegible]. [illegible] 50,000 long tons; [illegible] 25,000 tons; and (4) brown rice, 30,000 tons. The Secretary Agriculture [illegible] 1,000 more [illegible] tons, [illegible] 1,115,000 tons.

[illegible] that this product could effectively be listed as in surplus under present administrative interpretations of that amendment.

[illegible] of rice to Egypt or to other Asiatic importers. The statements by [illegible] seem clearly to be the diversion of large

---

[illegible] 10,000 tons Egyptian S.M.B. 12 per cent broken at [illegible] per metric ton, [illegible] basis, [illegible] for [illegible] following three years. Supplies and [illegible] to be easing in traditional markets but no major indication [illegible] and [illegible] in other Asiatic markets.

tonnages of American rice to support, the sequestration of such supplies, and the imposition of stringent controls in the following crop year.

By October 15, 1953, the black-market price of rice in Japan was 50 per cent above the level of September 15, 1953 and more than twice as high as in May, 1953. This occurred despite the fact that industrial production rose to a postwar peak after eight successive months of increase. The indices of physical production are running about 60 per cent over 1934-1938 levels. Consumer prices, especially for cereals, rose sharply as a result of the poor rice crop and the expected increase of 10 per cent in the price of rationed rice.18/ Drastic credit controls were then being considered to contain inflation. The value of imports was still running twice the value of exports--and still was being about exactly offset by special dollar earnings from United States expenditures for the armed forces in Japan or Korea. Barley and wheat imports were increasing in October, 1953 while rice imports were declining. Total foreign payments exceeded total foreign receipts especially in dollars but also in sterling and in open accounts. Reflecting smaller war expenditures, invisible dollar receipts fell off and total dollar payments, therefore, exceeded dollar receipts for the first time in 1953. Bank note issue and government fiscal operations offset to some measure the effect of tightened credit controls. There is every evidence of extreme economic instability in Japan.19/ Thus, even if wants for American rice may be assumed to exist, there is grave question with respect to the ability of the Japanese to finance additional imports except through extraordinary sources of exchange.

In the 1951-52 season, Japan absorbed 32 per cent of United States rice exports and Indonesia took 10 per cent. In 1952-53, the respective percentages were 25 and 6. Available evidence indicates that two factors are at issue in both markets: (1) price levels relative to those in competing export areas, and (2) dollar exchange or other means of financing. There seems to be little immediate prospect of normal trade earnings of sufficient dollars to finance heavy imports of rice by either nation. Other sources should be considered, especially if presently available dollar claims against Americans are insufficient to maintain a balanced dollar trade. Such consideration is justified by the fact that if the expected softening of world prices occurs, the United States government will be burdened with heavy surpluses and the industry will be faced with the painful adjustment of forced contraction of output. Maintenance of political stability--at least indirectly related to the size and price of the Japanese rice ration--may also be an issue.

The character of the Japanese market since the war's end is indicated by Table 14. In brief, the United States has supported the Japanese foreign trade since the end of the war. Deduction of United States aid from postwar balances reveals a bankrupt nation. Balances in 1952 and 1953 are desperately low. Trade deficit is running near $1,000,000,000 a year. Counting invisibles, and now counting indirect American aid through noncommercial sources of dollar spending, the deficit is still huge. With respect to dollar trade, the Japanese since the war have never been able to finance even one half of dollar

---

18/ This means an increase from 8.6 to 9.6 cents a pound.

19/ Currencies have depreciated in terms of dollars since the war in India, Indochina, and Thailand.

purchase of American rice to support the equalization of price [illegible]
the importation of staggent controls in the following year.

[illegible] from 8.6 to 9.6 cents a pound.

[illegible]

[illegible] cal production are running about 60 per cent [illegible]
[illegible] removal of the [illegible]

[illegible] dollar receipts for the first time in 1953. Small note issue and government

[illegible]

[illegible]

[illegible]

imports by sales to the United States. Most often, the ratio of dollar sales to dollar purchases has ranged from one fourth to one eighth or lower. The latest data available do not indicate any improvement.

The food policy of the Japanese government since the war has been based on adjustment to defeat, occupation, the end of Japanese colonialism, development of new Asiatic nations, the conquest of China by the Communists, and the United Nations war in Korea. There has been heavy infusion of purchasing power through American aid. The aim of policy has been to regenerate the economy without the food and raw materials of the Asiatic continent. War industries were liquidated upon occupation. Redevelopment of heavy industry was undertaken to shorten the period of dependence on the United States. Upon outbreak of the Korean War, the Japanese Police Reserve was established for protection of the nation. On March 8, 1952 the directive prohibiting arms manufacture was withdrawn. American policy encompassed three stages: relief, economic recovery, and, finally, a "pay as you go" basis.

By December, 1951, the Japanese government controlled about 3,500,000 metric tons of food stocks. In January, 1947, about two thirds of family food expenditures were in black-market outlets. By January, 1952, the estimated percentage spent in such outlets had declined to about 6. Consumer price inflation greatly outstripped manufacturing wages and agricultural prices. Reasonable balance among these three series had been restored at about 225 per cent of the 1934-1936 levels by October, 1950. There has been little outright unemployment in Japan but much underemployment. By 1951, internal living standards were still low by United States criteria but were higher than in prewar Japan, higher than other Asiatic nations, and higher than some in Europe.

There had been 15 years of inflation when the budget was revised and the economic stabilization program introduced in December, 1948. By January 31, 1952, ¥313,500,000 had been used as United States aid counterpart funds for Japanese stabilization, of which about one third was short-term investment in government food certificates. Increases in procurement by the United Nations within Japan in 1950 helped to check the rate of inflation.

Private foreign trade began in 1947. Banks and insurance companies were licensed to commence operations in Japan. In September, 1949, the Japanese Foreign Exchange Control Board was established. Two months later the bulk of earned foreign exchange was transferred to the Japanese government under the Foreign Exchange and Foreign Trade Control Law. On January 1, 1950, provision was made for normal foreign trade operations. The occupying powers undertook to survey and revise the tax structure, the state monopolies, and the customs service which had been eliminated in 1943. There was a progressive transfer to the Japanese of control over private imports and exports and normal customs functions, completed in 1951. The 1947 revision of the customs statutes was made effective by the Diet on May 1, 1951 and resulted in great increases in customs receipts.

Food policy has been colored by the dominant fact that Japan has always been a deficit nation. The food deficit was heightened by defeat. In the interwar years, average annual food imports were about 3,000,000 metric tons or about 15 per cent of domestic consumption. At the war's end, Formosa, Korea, and Manchuria had been lost; the food collection system had broken down; and some 5,000,000 Japanese had been repatriated. Food policy objectives encompassed maximum collection of indigenous food production, equitable distribution,

latest data available do not indicate any improvement.

and minimization of imports. At the beginning of the occupation, government controlled rice, wheat, barley, miscellaneous grains, pulses, and sweet potatoes. Price control was discontinued for vegetables in 1949 and fish in 1950. By mid-1952, rice alone was rationed.

The United States provided huge quantities of relief foods: 827,000 metric tons in 1946, 2,000,000 tons in 1947, and 1,900,000 tons in 1948. Imports of about 3,000,000 tons of foodstuffs in 1949, 2,800,000 tons in 1950, and 3,300,000 tons in 1951 were apparently financed by nongovernment funds to the extent of about one half their value. Staples under government aid were successively decreased in number. They originally included barley, wheat, wheat flour, soybeans, and sugar in the main.

Rice imports were largely brought in by private trading companies and sold to the Food Agency or Ministry of Agriculture and Forestry on "on-board ship, Japanese port" basis. Imported and indigenous foods followed the same methods of internal distribution. After November, 1948, the proportion of food rations made up of barley, potatoes, miscellaneous grains, and other foods declined and were replaced by rice to conform more closely to Japanese tastes. In 1948, rice comprised 56 per cent of the staple ration with the rest made up of wheat, barley, and other grain coupons. The public monopoly corporations for internal food distribution set up in 1947 were discontinued on July 31, 1951. Labor premiums were included in the rations. Incentive goods were first used to increase output and collection. All consumer goods other than foods were decontrolled by 1952.

Inflation has been startling. Prices increased twentyfold in 1945. By 1949, general price indices were at about 2,000 per cent of 1937 levels. Prices on January 1, 1952 were 30 per cent above the inflated levels of June, 1950.20/ Foreign trade was bankrupted in 1945. At the end of 1951, Japan held $583,000,000 in commercial dollar accounts, $211,400,000 in sterling, $109,000,000 in open account, and projected net receipts of $120,000,000. During 1951, invisible receipts from Japanese expenditures by foreigners amounted to $582,000,000 of which 98 per cent was United States expenditure for United Nations military procurement, general sales to occupation forces, armed services clubs, etc.

The Supreme Command Allied Powers negotiated more than 20 bilateral trade agreements. With limited private trade beginning in 1947, full responsibility was returned to the Japanese government on March 17, 1952. The SCAP mission in New York was ended in June of 1951. Floor prices were eliminated in 1949. Licenses were thereafter required only for critical or strategic materials. Beginning in 1950, private importers could obtain exchange from designated banks after obtaining approval of the exchange control agency. The Supreme Command was well aware that a drastic dollar shortage would develop unless other income were obtained when the Korean war ended.

20/ Price movements in Japan show a tremendous inflationary trend since the war until about 1951. In 1947, prices were 50 times as high as in 1934-1936. In 1948, prices were 128 times as high as before the war; 1949--200 times; 1950--250 times; and 1951--about 350 times. By 1951, the Japanese government seems to have stopped the inflation and by September, 1953, the wholesale price index for all commodities stood at 357 with reference to the base period 1934-1936 = 1.

In the face of dollar bankruptcy, Japanese population has increased from 72,100,000 in August, 1945 to 84,900,000 in 1952, with 8,000,000 net births and 5,000,000 repatriates. There is still insufficient food production, low levels of farm productivity, and poor tenure. The land base has been constant at about 6,000,000 hectares since 1921. Food production has been increased from 10,800,000 metric tons in 1945 to 16,600,000 metric tons in 1950. But there are compelling limitations upon productivity in Japan.

Wheat and barley, white and sweet potatoes, and rice substitutes have constituted important fractions of the Japanese diet since 1941. Total intake of these products peaked at about 7,500,000 tons in 1942-1944, fell to less than 5,000,000 tons in 1945, climbed to more than 7,000,000 tons in 1948, and had fallen back to 5,000,000 metric tons in 1951. It seems clear that the Japanese population will still shift to other cereals as substitutes for rice only when required to do so by drastic shortage or relatively high rice prices. Indigenous food production, even allowing for unreported and uncollected production, has rarely exceeded 80 per cent of the estimated minimum requirements of the nation since the beginning of the war. By 1945, production of selected foods, beverages, and tobacco was about 50 per cent of the 1932-1936 average. By 1951, recovery had taken these products to no more than about 85 per cent.

The daily average intake of types of food in August, 1951 was estimated in grams by the Ministry of Welfare as follows: protein, 65.9; animal, 21.1; vegetable, 44.8; fats and oils, 21.5; and carbohydrates, 382.1. The basic food ration for normal urban consumers has been set as follows since November, 1948:

Item	Grams	Calories	Decontrolled
Staple food (polished rice equivalent)	385.1a/	1,350	
Miso (soy paste)	21.5a/	28	July, 1950
Shoyu (soy sauce)	20.7b/	6	July, 1950
Oil	2.0	18	April, 1950
Sugar	9.9	38	March, 1952

a/ Slight variation by areas. Slight increase in October, 1949.
b/ Increased gradually to 3.5 grams by January, 1950.

Domestic rice production appears to have been fairly stable, but both the magnitude of government collections and the estimated percentage of total production collected appear to have varied sharply since the war. Domestic production has been supplemented mainly by imports of wheat, wheat flour, barley, soybeans, and sugar. All postwar imports were financed by government through 1948. Subsequent imports of wheat were heavily financed by unusual sources of exchange. Of the 22 countries with which Japan traded most heavily in 1951, the trade balance was deficit with half of them. However, the major deficit was with the United States. Thus, the Japanese market is one in which increased imports of rice would meet ready consumer acceptance if sales could be made at world prices. However, Japan is a bankrupt nation. Its trade has been financed by the United States since the conquest. If such financing is terminated, it is difficult to see how Japan can pay for accelerated American imports in any line.

The Indonesian Market.--Insofar as can be determined, the analysis of the purchasing power of Japan is largely applicable to Indonesia. The exchange position of that nation--and particularly its dollar balance--has deteriorated sharply each month. It appears that significant long-run expansion of purchases of rice from the United States would require special means of financing.

Indonesian riceland for 1954, which will be harvested beginning in May, 1954, is approximately 17,300,000 acres, about 4 per cent above last year in both acreage and expected output. The 1953 crop was estimated to be about 6,800,000 metric tons (rice equivalent), which was nearly 6 per cent above the 1952 crop. During 1952, relatively heavy rice imports and the indigenous crop of 6,400,000 tons resulted in a large carry-over at the end of the year. There was also a considerable tonnage undelivered from 1952 purchases. This was one of the principal reasons for imports falling off from the preceding year. Assuming downward adjustment of carry-over in 1953, some 300,000 tons and probably more of imports will be required in 1954 to maintain consumption at last year's rate despite the prospects for a larger crop. More than twice the volume of 1953 imports would be required to restore per-capita consumption to the 1937 level. Population is increasing at the rate of 1.2 per cent a year. The need for a continued importation of rice for some time is apparent. The extent to which domestic rice production can be increased depends to a considerable extent on the level of rubber prices. Rice production is reported to increase more rapidly in cycles of low rubber prices, now relatively depressed. Rice from the United States usually moves to Indonesia during the first three months of the calendar year. American exports in 1954 may, therefore, be small as a result of the current stock position in Indonesia.

There is a strong possibility of some movement from the United States. However, this will depend again, as in the Japanese case, on two important conditions: (1) availability of dollar exchange, and (2) prices prevailing in the Asiatic exporting markets. Available information indicates that Indonesia's exchange position worsened in the second half of 1953. By October 31, 1953, Indonesian accounts outstanding in the United States were only about one half as high as in January, 1953, and only about one fourth of the amounts outstanding in December, 1951, reflecting the considerable drop in rubber prices. The deteriorating exchange position of Indonesia is further indicated by the revaluation of gold in May, 1953, from 4,265 rupiah to 12,796 rupiah per kilogram of fine gold. The holdings of the Bank of Indonesia were thereby increased from 968,000,000 rupiah in November, 1952, to 1,701,000 rupiah in November, 1953. In United States dollar terms, however, this represents about 42 per cent decline in actual quantitative gold holdings during this period. Dollar claims against Americans are also down. Heavy United States rice exports to Indonesia may be dependent on abnormal financing as well as on Asiatic prices.

Indonesia has traditionally been an export nation, particularly with respect to the hard-currency nations. However, the recent decline in rubber, tin, and copra prices since the Korean War peak has weakened the main sources of Indonesian foreign exchange. Costs of imported commodities have not fallen and terms of trade have, therefore, turned against Indonesia. Government revenues from import and export charges have declined significantly. Limitation of imports has been rendered difficult by the necessity to import sufficient rice to maintain internal political stability. A policy of harsh restriction upon importation of luxuries and, secondarily, of reduction in imports in general has been undertaken. Surcharges ranging from one third to twice the value of most imports are now levied. Prepayment of 75 per cent of the C.I.F. value of

Indonesian rice[illegible] for 1953, which will be harvested beginning in May, 1953, is approximately 17,300,000 acres, about 4 per cent above last year in both acreage and expected output. The 1953 crop was estimated to be about 1952 crop. During 1952, relatively heavy rice imports and the bumper crop was also a considerable tonnage undelivered from 1952 purchases. This was due Assuming downward adjustment of carry-over in 1953, some 200,000 tons and probably more of imports will be required in 1953 to maintain consumption at volume of 1953 imports would be required to restore per-capita consumption to the 1937 level. Population is increasing at the rate of 1.5 per cent a year. The need for a continued importation of rice for some time is apparent. The extent to which domestic rice production can be increased depends to a considerable extent on the level of rubber prices. Rice production is reported to increase more rapidly in cycles of low rubber prices, now relatively depressed. Rice from the United States usually moves to Indonesia during the first three months of the calendar year. American exports in 1953 may, therefore, be small as a result of the current stock position in Indonesia.

There is a strong possibility of some movement from the United States.

Indonesia's accounts outstanding in the United States were only about one half as high as in January, 1953, and only about one fourth of the amounts outstanding in December, 1951, reflecting the considerable drop in rubber prices. The of this yield. The holdings of the Bank of Indonesia were thereby increased declines in actual quantitative gold holdings during this period. Dollar claims against Americans are also down. Heavy United States rice exports to Indonesia may be dependent on abnormal financing as well as on Asiatic prices.

importation of luxuries and, secondarily, of reduction in imports in general most imports are now levied. Presently out of 75 per cent of the C.I.F. value of

imports is generally required prior to issuance of an import license. There is no dollar gap problem, but there is now a large deficit with soft-currency areas and much hard-currency exchange has been turned into soft-currency accounts. A policy of conserving dollar exchange for purchase of developmental commodities has been enunciated. Decline in sugar exports and increase in rubber have enhanced the vulnerability of the Indonesian economy. Further declines in gold and dollar reserves are forecasted for 1954. There is a conscious policy designed to encourage dollar exports and to discourage dollar imports. There have been charges of direct discrimination against dollar imports to the extent of a 20 per cent differential in prices. Most discriminatory procedures have apparently been relaxed. Failure of rice production to keep pace with population increases has required heavy increases in importation of rice. Heavy 1952 purchases and improved production resulted in a decline in 1953 rice imports to about half the 1952 level. There is no prospect for immediate self-sufficiency in rice, but exchange, and particularly dollars, will be conserved as much as possible in its purchase. In 1953, imports were apparently cut back by about 10 per cent despite a target reduction of 30 per cent. The payments problem will be even more severe in 1954 and further contraction to the extent of 15 or 20 per cent in the value of imports is expected. It is expected that many United States commodities will still be classed as essentials. "As the exception, United States rice shipments to Indonesia are largely a thing of the past because of reduced import requirements and increased availability in the Far East."21/

The Ceylonese Market.--The government of Ceylon cut food subsidies sharply in the last quarter of 1953. The price of rationed rice was raised. A rubber-rice trade agreement was executed with Communist China. A four-year rice purchase agreement was executed with Burma. The two agreements apparently suffice to assure that Ceylonese rice needs are met for the next four years. External assets continued to decline sharply. Government was faced with a continuing net cash operating deficit. The national budget was explicitly formulated to increase capital investment in agriculture in an effort to lessen dependence upon imports. The ceiling placedon food subsidies--mainly for rice--cut such expenditures by about 50 per cent of the expected magnitude. Internal rice prices have already been increased and decreases in food subsidies were placed in effect immediately upon presentation of the 1954 budget.

The agreement with China, on a barter basis, provides for importation of 270,000 metric tons of rice imports at lower relative prices than last year. The Burmese agreement provides for a minimum of 200,000 long tons of rice annually. Burma will deliver any quantity over this amount up to a maximum annual quantity of 600,000 long tons provided that notice is given prior to November 15 of the preceding year. As noted above, the agreement specifies declining prices per long ton of Ngasan S.M.S., f.o.b. Burma ports: 1954, $140.00; 1955, $134.40; 1956, $128.80; and 1957, $123.20. Rice imports in the first 11 months of the last year comprised 367,592 tons from Burma, China, and the United States. If the projected 1954-55 plans materialize, Ceylonese imports from the United States will be drastically cut or eliminated.

21/ U.S. Department of Commerce. Foreign Commerce Weekly, vol. 51, no. 8, February 22, 1954, Washington, D.C., pp. 4, 24.

imports is generally required prior to issuance of an import license. There is
imports to the extent of a 20 per cent differential in prices. Most discrimi-
natory procedures have apparently been relaxed. Failure of rice production
tion of rice. Heavy 1952 purchases and improved production resulted in a
decline in 1953 rice imports to about half the 1952 level. There is no
prospect for immediate self-sufficiency in rice, but exchange, and particularly
dollars, will be conserved as much as possible in its purchase. In 1953,
imports were apparently cut back by about 10 per cent despite a target reduc-
tion of 30 per cent. The payments problem will be even more severe in 1954
and further contraction to the extent of 15 or 20 per cent in the value of
imports is expected. It is expected that many United States commodities will
still be classed as essentials. "As the exception, United States rice ship-
ments to Indonesia are largely a thing of the past because of reduced import
requirements and increased availability in the Far East."[2]

---

sharply in the last quarter of 1953. The price of rationed rice was raised.
rice purchase agreement was executed with Burma. The two agreements apparently
suffice to assure that Cochinese rice needs are met for the next four years.
External assets continued to decline sharply. Government was faced with a
dicit and deficiency financing. Government was faced with a
heavy dependence upon imports. The ceiling placation food subsidies--mainly
for rice--cut such expenditures by about 5% per cent of the expected magnitude.
dies were placed in effect immediately upon presentation of the 1954 budget.

The agreement with Burma, on a barter basis, provides for importation of
270,000 metric tons of rice imports at lower-relative prices than last year.
The Burmese agreement provides for a minimum of 200,000 long tons of rice
annually. Burma will deliver any quantity over this amount up to a maximum
annual quantity of 600,000 long tons provided that notice is given prior to
in the first 11 months of the last year compared 367,542 tons from Burma.
Soybeans imports from the United States will be drastically cut or eliminated.

February 22, 1954, Washington, D.C., pp. 1, 21.

Price Policy

Support and Control History.--Over the last 20 years, support of the farm price of United States rice has been available through several techniques. Total acreage of rice has been subject to occasional control by methods and under conditions specified in a variety of statutes. At present, rice is one of the six basic commodities under price-support legislation. Government is now required to support the price of rice at 90 per cent of parity. Permanent statutes provide for sliding-scale supports by which the guaranteed level of farm price would decrease with increases in total supply, according to schedules specified by the laws. However, application of the flexible provisions has been deferred by amendment. The price of the 1953 crop of rice must be supported at 90 per cent of parity regardless of supply percentage. However, eligibility for loans or purchase agreements on 1953 rice was terminated on January 31, 1954.

Percentages of parity have been specified for mandatory support of rice since 1941.22/ Since 1943, the announced percentage has been 90 per cent. In fact, the support price under all legislation has been consistently lower than the realized price except in calendar 1951. In consequence, there has been little price support and correspondingly little control over acreage or marketing by the federal government. At present, the support price at 90 per cent of parity is approximately $4.85 per hundredweight on farm, rough basis. The estimated seasonal average price on December 15, 1953 was $5.34. In consequence, relatively small amounts of rice have gone into government storage--trade estimates refer to about 3,000,000 sacks. Similarly, the Secretary of Agriculture has officially determined that neither quotas nor allotments are required under the present statutes in view of the estimated total annual supply for 1953-54 of 54,556,000 hundredweight, rough basis. A total supply of more than 62,000,000 sacks would be required to justify imposition of allotments or quotas under the statutes.

Relatively minor amounts were pledged for loans in 1948, 1949, and 1950. The amounts pledged and the loan value of such pledges are shown in Table 15. More than 8 per cent of the crop was pledged in 1948 and approximately 20 per cent in 1949, when most basic prices sagged sharply. In no case, did the total value of loans outstanding on rice exceed 1 per cent of the total commitments of the Commodity Credit Corporation for loans, purchase agreements, or purchases. In general, about one fourth of the relatively minor support was obtained through loans and the remainder through purchase agreements. Support on 1953-54 rice as of December, 1953 was twice the 1952-53 volume but was still minor in amount.

In the years 1938 through 1943, acreage allotments were issued under the soil-depleting provisions of the Agricultural Conservation Payments statute. These allotments increased from 850,000 acres in 1938 to 1,380,000 acres in 1943, with the sharpest increase occurring in the 1942 season. Acreage allotments at much higher levels were promulgated in 1950. Similar allotments were proclaimed in 1951 but were terminated after the rise in price.

- - - -

[illegible]

[illegible]

[illegible]

TABLE 15

United States Rice: Government Price-Support and Acreage-Control Programs

Year	Average CCC support price	Per cent of parity	Quantities pledged for loans	Loan value of pledge	Percentage of United States production over support	Total losses, agriculture purchases	Methods		Soil depletion acreage allotments under ACP	Acreage allotments under AAA of 1938
							Loan	Purchasing agreement		
	dollars per hundredweight		1,000 hundredweight	1,000 dollars		per cent			1,000 acres	
1933	--[a]	--	--	--	--	--	--	--	--	--
1934	--	--	--	--	--	--	--	--	--	--
1935	--	--	--	--	--	--	--	--	--	--
1936	--	--	--	--	--	--	--	--	--	--
1937	--	--	--	--	--	--	--	--	--	--
1938	--	--	--	--	--	--	--	--	850	--
1939	--	--	--	--	--	--	--	--	862	--
1940	--	--	--	--	--	--	--	--	892	--
1941	2.06	85	--	--	--	--	--	--	896	--
1942	2.30	85	--	--	--	--	--	--	1,200	--
1943	[b]	90	--	--	--	--	--	--	1,380	--
1944	[b]	90	--	--	--	--	--	--	--	--
1945	2.82	90	--	--	--	--	--	--	--	--
1946	[b]	90	--	--	--	--	--	--	--	--
1947	3.76	90	--	--	--	--	--	--	--	--
1948	4.08	90	153	658,000	8.7	--	--	--	--	--
1949	3.96	90	1,865	8,034,000	20.1	1.0	23	77	--	--
1950	4.56	90	217	1,128,000	2.1	0.5	28	72	--	1,593
1951	5.00	90	--	--	--	--	--	--	--	1,868[d]
1952	5.04[c]	90	--	--	--	--	--	--	--	--
1953	4.81	90	--	--	--	--	--	--	--	--

[a] Dashes indicate zero.
[b] Not announced since price much higher than mandatory support level.
[c] Minimum--to be raised if 90 per cent parity on August 1, 1952, exceeds $5.04.
[d] Terminated.

Allocations were in effect on an international basis from 1945 through 1949. Export allocations were proclaimed in September, 1952 in response to scarcities incident to the outbreak of the Korean War. Export allocations appear gradually to be disappearing in other countries as easing of shortage in world supply appears.

The support program has had very little effect upon prices or returns to producers. There are neither the heavy surpluses nor loan commitments which have accrued in the support programs for other basic commodities. However, as a result of the supply expansion of the past 20 years, a fall in the world price below the support level would mean immediate acquisition of heavy stocks by Commodity Credit Corporation.

United States exports have increased since prewar days from a negligible percentage to more than 15 per cent of net world exports. However, world trade movements are only about one half of prewar volume. The necessity to export some 60 per cent of domestic production, in order to maintain prices above support levels and thus avoid huge surplus stocks and resultant controls, has engendered inquiry into the propriety of alternative methods of price support.

The present statutes guarantee 90 per cent of parity price support through calendar 1954.23/ Relatively small decreases in on-farm prices from export sale would almost certainly require imposition of stringent quotas or allotments. One alternative to the present system is competitive adjustment of the acreage in response to diminishing farm prices. Were the approximate 25,500,000 sacks, rough basis, of rice now going into export outlets to be dumped upon domestic and territorial markets, the average farm price would decrease by approximately $3.75 per sack. At an on-farm price level of no more than $1.25 per hundredweight, rough basis, curtailment of planting would be almost inevitable.

Multiple Pricing.--The probable effects of multiple prices in United States export crops have been appraised by various agencies over the past several months. Such plans, in general, consider division of the market into two broad classes. The first such class would be the domestic and territorial markets.24/ The second broad class would be the world export market in which, until recent years, United States exports have constituted a negligible proportion.

There are many techniques of multiple pricing whereby differentially higher prices could be maintained for the domestic-territorial outlets. The basic impact of any one of such plans is indicated by the elasticity coefficients set out in Table 16. The coefficients of demand elasticity indicated in column 4 are calculated in the actual farm price and actual total sales in

- - - -

allocations were in effect: on international basis from 1/15 through 1/45. Export allocations were produced on September 1/32 in response to conditions incident to the outbreak of the Korean War. Export allocations appear gradually to be disappearing in other countries as easing of shortages in world supply appears.

The support program has had very little effect upon prices since World by Commodity Credit Corporation.

United States exports have increased since prewar days from a negligible export level and thus avoid huge surplus stocks and resultant control, but

bale would almost certainly require import certificates, adjustment duties or allotments. One alternative to the present system is competitive adjustment of this acreage in response to diminishing farm prices. Were the approximate 27,000,000 acres, rough basis, of rice now going into export outlets to be dumped upon approximately $3.75 per sack. At an on-farm price level of no more than $1.25, [illegible], rough basis, abandonment of planting would be almost.

Yields Projected.--The probable effects of multiple prices in United export crops have been appraised by various agencies over the past two broad classes. The first such class would be the domestic and [illegible] until recent years, United States exports have constituted a negligible proportion.

There are many techniques of multiple pricing whereby differentially basic import of any one of such plans is indicated by the elasticity coefficients set out in Table 16. The coefficients of demand elasticity indicated in column 1 are calculated in the actual farm price and actual export sales in

[illegible] recommended that the provisions for [illegible] of rice at 90 per cent of parity be allowed to expire, at the end of this year. The eligibility-acreage provisions of the [illegible]

2b/ Governmental analysis has commonly envisaged inclusion of the Orient with the domestic and territorial outlets. This is apparently justified by political considerations in both Cuba and the United States.

TABLE 16

United States Rice: Average Annual On-Farm Price, Total Annual Farm Supply Minus Total Exports, and Coefficient of Demand Elasticity, Rough Basis, 1921-1952, Excluding 1942-1945 and 1951

Year	Average annual on-farm price (P)	United States total farm supply minus total exports (Q)	Coefficient of demand elasticity $N = \frac{dQ}{dP} \cdot P/Q$ [a]
1	2	3	4
	dollars per hundredweight	1,000 hundredweight	
1921	2.18	13,784	-.379571
1922	2.19	14,762	-.356049
1923	2.49	13,187	-.453174
1924	2.99	14,127	-.507963
1925	3.30	16,367	-.483901
1926	2.51	16,373	-.367923
1927	2.02	17,466	-.277568
1928	2.02	15,317	-.316511
1929	2.22	14,390	-.370257
1930	1.74	16,995	-.245719
1931	1.08	17,444	-.148590
1932	0.93	19,081	-.116975
1933	1.73	18,111	-.229253
1934	1.75	19,752	-.212637
1935	1.60	18,215	-.210815
1936	1.85	25,884	-.171535
1937	1.46	23,347	-.150084
1938	1.42	21,545	-.158181
1939	1.62	23,879	-.162821
1940	1.80	22,665	-.190602
1941	3.01	18,633	-.387699
1942	3.61	--[b]	--
1943	3.96	[c]	
1944	3.93		
1945	3.98	--	--
1946	5.00	19,900	-.603015
1947	5.97	21,316	-.672171
1948	4.88	24,584	-.476407
1949	4.10	26,321	-.373846
1950	5.09	26,452	-.461818
1951	4.82	--	--
1952	6.05	23,431	-.619692

a/ $\frac{dQ}{dP} = -2,400.$

b/ Dashes indicate zero.

c/ Blanks indicate data not available.

all outlets other than export channels for each year from 1921 through 1952, excluding the price-control years of 1942-1945 and 1951. These coefficients are calculated by multiplying the net regression coefficient of quantity on price and the ratio of prices to quantity in each year. These coefficients indicate the net proportional change in sales which would have been associated with a given change in price in each of the years. Thus, for 1921, a 1 per cent change in price would have been associated with a change in the opposite direction in domestic-territorial volume of .38 per cent. In 1932, a 1 per cent decrease in price would have been associated with an increase in domestic sales of approximately .12 per cent. All of the coefficients calculated with quantity dependent upon price indicate that total receipts in the domestic-territorial markets would have been substantially increased in all years by restriction of the volume to levels substantially lower than those actually moved into trade. This conclusion means that in all cases, a given increase in domestic price level would have been associated with a proportionately smaller decrease in domestic price and, consequently, would have been associated with an increase in net revenue from domestic sales.

In Table 17, the effect of one possible type of price discrimination between domestic and export outlets is appraised quantitatively. The plan implicit in Table 17 involves sale in domestic outlets of that quantity which, for given United States and world demands and for given total United States farm supplies, would maximize total United States farm receipts. It is assumed that the difference between the optimum-returns volume in the United States and the total supply would have been sold at world prices in export outlets. There is no assumption of any export subsidy whereby the difference between world price and United States domestic-territorial price would be equalized. Administrative procedure for effectuation of such a program would probably require issuance of allotment certificates covering the optimum volume of sale in domestic channels. The difference between this volume and total United States farm supply could be moved freely into export channels.

Calculations were based upon the model specified in Figure 25. United States on-farm demand for each year was calculated by passing the slope -$.000150 through P_F, the realized farm price, and Q_{DT}, the actual volume utilized in each year in domestic-territorial channels.

Farmers equalized the on-farm returns per sack from sales in export and in domestic-territorial channels. Since United States exports were a minute fraction of the total world trade until the last few years, it is assumed that the world demand facing United States farm producers was equivalent to the function W_P. Demand elasticity on the United States farm was taken to be indefinitely high. Thus, in each of the years, the price P_F was obtained from both segments of the total market. Through competitive price equalization in both outlets, the amount Q_{DT} (here expressed in 1,000 hundredweight, rough basis) moved into domestic-territorial outlets at the average on-farm price P_F. Where Q_T represents the total farm supply, the magnitude Q_T minus Q_{DT} moved into export channels, also at price P_F. Total returns at the farm level were thus taken to be represented by the product of P_F and Q_T.

Maximization of farm returns under the multiple pricing program outlined above would involve restriction of sales in the domestic-territorial market to Q_{DT}, the higher domestic-territorial price P'_F, and increase of export sales to Q_T minus Q'_{DT} at the price W_P. Thus, some means would be required to prevent leakage between the two markets.

all outlays above that amount for each year from 1921 through 1952, multiplying the price-control years of 1942-1945 and 1951. These coefficients are calculated by multiplying the net regression coefficient of quantity on time and the ratio of prices to quantity in each year. These coefficients indicate the net proportional change in sales which have been associated with a given change in price in each of the years. Thus, for 1921, a 1 per cent change in price would have been associated with a change in the opposite direction in demand-adjusted volume of .39 per cent. In 1923, a 1 per cent change in price would have been associated with an increase in domestic sales of approximately .39 per cent. All of the coefficients calculated with any dependent upon price indicate that total receipts in the domestic-territorial markets would have been substantially lower than those actually recorded. This conclusion means that in all cases, a given reduction of the volume to levels substantially lower than those actually moved this trade. This conclusion means that in all cases, a given increase in domestic price level would have been associated with a proportionately smaller decrease in domestic price and, consequently, would have been associated with an increase in net revenue from domestic sales.

In Table 17, the effect of one possible type of price discrimination implicit in Table 17 however rels in domestic outlets of that quantity which can given United States and world demands and for given total United States farm supplies, would maximize total United States farm receipts. It is assumed that the difference between the optimum-returns volume in the United States and the total supply would have been sold at world prices in export outlets. There is no assumption of any amount whereby the difference between world price and United States domestic-territorial price would be eliminated. Nonetheless procedure for estimation of such a program would probably require sequence of alternate certificates covering the optimum volume of sale in domestic channels. The difference between this volume and total United States supply could be moved freely into export channels.

Calculations were based upon the model specified in Figure 25. United States on-farm demand for each year was calculated by passing the slope through P_0 through the realized farm price, and Q_0, the actual volume utilized in each year in domestic-territorial channels.

Farmers equalized the on-farm returns per sack from sales in export and in domestic-territorial channels. Since United States exports were a minute fraction of the total world trade until the last few years, it is assumed that the world demand facing United States farm producers was equivalent to the domestic demand. Demand elasticity on the United States farm was taken to be approximately $1/3$. Thus, in each of the years, the price P_T was obtained from both components of the total market. Through competitive price equilibration in both markets, the amount Q_T (these expressed in 1,000 bushelweights, rough two export channels, also at price P_T. Total returns at the farm level were those taken to be represented by the product of P_T and Q_T.

Maximization of farm returns under the multiple pricing program outlined above would involve restriction of sales in the domestic-territorial market to Q_T, the higher domestic-territorial price P_T, and increase of export sales to Q_T minus Q_T at the price W_P. Thus, some means would be required to prevent leakage between the two markets.

TABLE 17

United States Rice: Differences in Farm Price and Value of Crop With and Without Maximum Return Discrimination of Domestic and Export Markets, Rough Basis, 1921-1952, Excluding 1942-1945, Inclusive, and 1951[a]/

Year	Total supply minus exports	All exports	Total supply	Average annual farm price	Value: total supply minus exports	Value: exports	Value: total supply	Adjusted United States price	Differences in value of: Total supply minus exports	Differences in value of: Exports	Differences in value of: Total supply
1	2	3	4	5	6	7	8	9	10	11	12
	1,000 hundredweight			dollars per hundredweight	1,000 dollars						
1921	13,784	6,522	20,306	2.18	30,049	14,218	44,267	3.22	- 7,857	15,025	7,168
1922	14,762	6,005	20,767	2.19	32,329	13,151	45,480	3.29	- 8,046	16,164	8,118
1923	13,187	3,690	16,877	2.49	32,836	9,188	42,024	3.48	- 9,889	16,417	6,528
1924	14,127	1,815	15,942	2.99	42,240	5,427	47,667	4.05	-13,631	21,118	7,487
1925	16,367	780	17,147	3.30	54,011	2,574	56,585	4.53	-16,937	27,004	10,067
1926	16,373	4,931	21,304	2.51	41,096	12,377	53,473	3.74	-10,480	20,549	10,069
1927	17,466	5,018	22,484	2.02	35,281	10,136	45,417	3.33	- 6,200	17,641	11,441
1928	15,317	6,362	21,679	2.02	30,940	12,851	43,791	3.17	- 6,664	15,471	8,807
1929	14,390	4,690	19,080	2.22	31,946	10,412	42,358	3.30	- 8,202	15,973	7,771
1930	16,995	4,552	21,547	1.74	29,571	7,920	37,491	3.02	- 3,907	14,785	10,878
1931	17,444	4,450	21,894	1.08	18,840	4,806	23,646	2.39	+ 2,006	9,420	11,426
1932	19,081	2,879	21,960	0.93	17,745	2,677	20,422	2.36	+ 4,769	8,874	13,643
1933	18,111	1,633	19,744	1.73	31,332	2,825	34,157	3.09	- 3,349	15,665	12,316
1934	19,752	1,988	21,740	1.75	34,566	3,479	38,045	3.23	- 2,667	17,283	14,616
1935	18,215	1,369	19,584	1.60	29,144	2,190	31,334	2.96	- 2,184	14,572	12,388
1936	25,884	840	26,724	1.85	47,885	1,554	49,439	3.79	+ 1,165	23,943	25,108
1937	23,347	5,024	28,371	1.46	34,087	7,335	41,422	3.21	+ 3,387	17,043	20,430
1938	21,545	5,562	27,107	1.42	30,594	7,898	38,492	3.03	+ 2,045	15,298	17,343
1939	23,879	4,936	28,815	1.62	38,684	7,996	46,680	3.41	+ 2,031	19,342	21,373
1940	22,665	6,371	29,036	1.80	40,797	11,468	52,265	3.50	- 1,135	20,399	19,264
1941	18,633	7,384	26,017	3.01	56,085	22,226	78,311	4.40	-15,095	28,044	12,949

(Continued on next page.)

Table 17 continued.

Year	Total supply minus exports	All exports	Total supply	Average annual farm price	Value: total supply minus exports	Value: exports	Value: total supply	Adjusted United States price	Differences in value of: Total supply minus exports	Exports	Total supply
1	2	3	4	5	6	7	8	9	10	11	12
	1,000 hundredweight			dollars per hundredweight	1,000 dollars						
1946	19,900	13,938	33,838	5.00	99,500	69,690	169,190	6.49	-34,924	49,750	14,826
1947	21,316	14,692	36,008	5.97	127,257	87,711	214,968	7.57	-46,576	63,629	17,053
1948	24,584	14,184	38,768	4.88	119,970	69,218	189,188	6.73	-37,245	59,985	22,740
1949	26,321	15,608	41,929	4.10	107,916	63,993	171,909	6.08	-27,903	53,960	26,057
1950	26,452	15,239	41,691	5.09	134,641	77,567	212,208	7.08	-41,001	67,320	26,319
1952	23,431	26,861	50,292	6.05	141,758	162,509	304,267	7.80	-50,373	70,876	20,503

a/ b_{PQ} = -.000150.

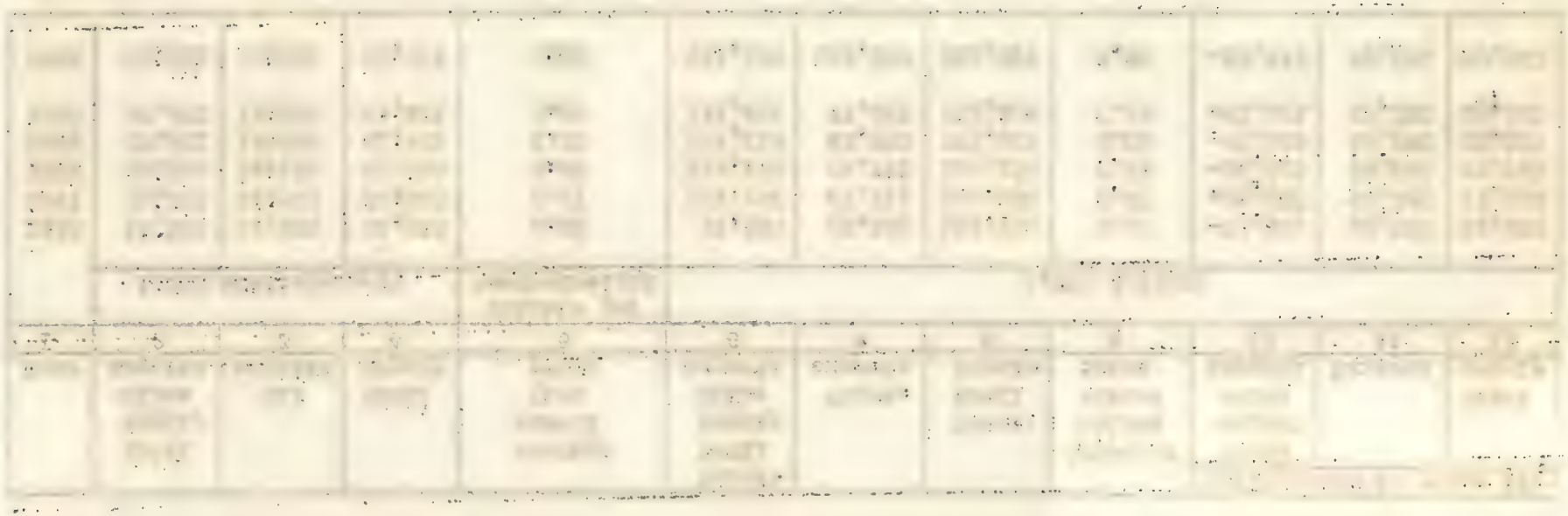
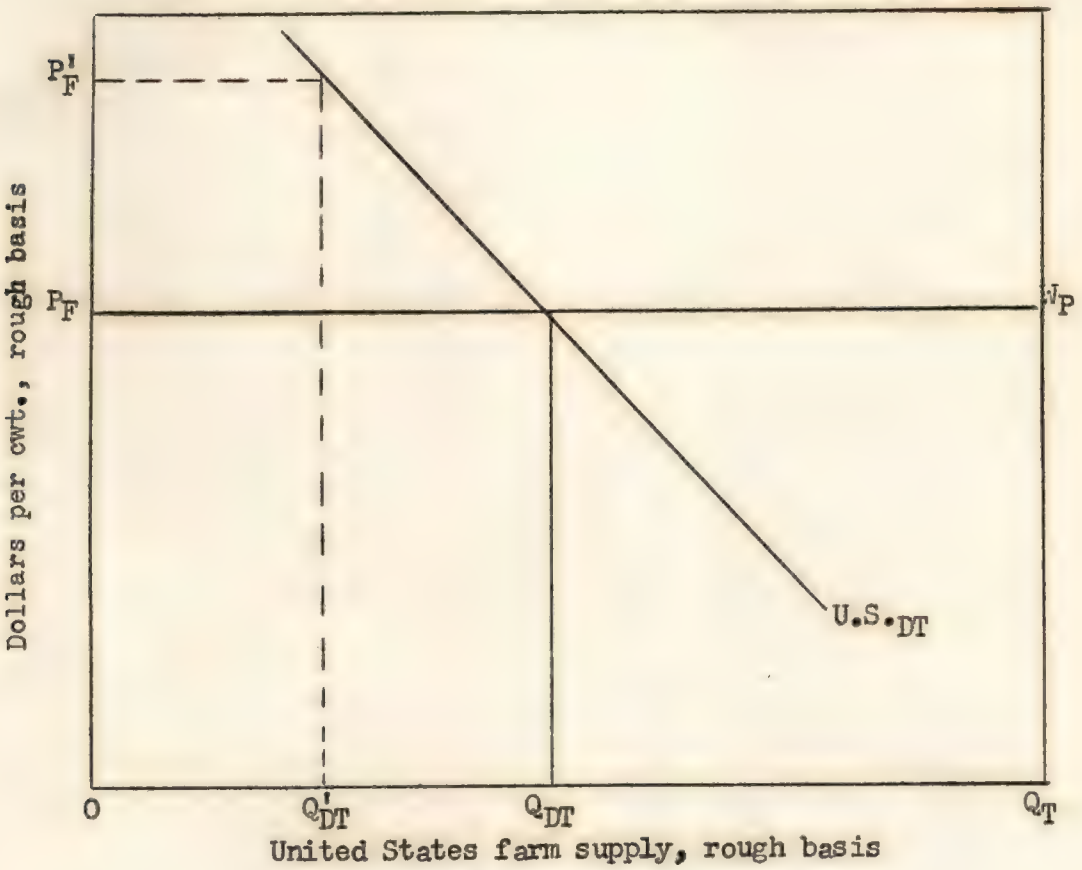


FIGURE 25

United States Rice: Distribution of Total Farm Supply
Between Domestic-Territorial and Export Outlets



Given the world and domestic-territorial demands--both reflected on the United States farm--and total United States farm supply Q_T, sale of Q'_{DT} at the average annual farm price P'_F with export sales of Q_T minus Q'_{DT} at the world price P_F would maximize farm receipts from combined sales in both outlets.25/

The domestic price, distribution between outlets, and the total value for the crop with equalization of prices in both outlets is shown in columns 2-8 of Table 17. Thus, for the year 1921, 6,500,000 sacks from a total supply of 20,300,000 sacks were exported. The realized average farm price was $2.18 from both outlets. The total value of the crop on the farm level was $44,300,000. Had the total domestic sales been decreased by 6,900,000 sacks and the total exports increased by the same amount, the resultant United States farm price for domestic sales would have been $3.22 per sack. In this case, the value of

---

25/ Since maximization is calculated at the on-farm level, Q'_{DT} is determined by equilibrating the first derivatives of W_P and the United States demand function. Given Q'_{DT}, P'_F can be read off the United States demand function. Domestic sales would be restricted by Q_{DT} minus Q'_{DT} and export sales would be correspondingly increased.

domestic sales would have been decreased by approximately $7,800,000. However, the total value of exports would have been increased by $15,000,000. Therefore, the total value of farm sales with the maintenance of a domestic price of $3.22 and sale of the increased volume in exports would have been $51,400,000 or a net increase in farm receipts through multiple pricing of $7,168,000. Available evidence indicates that substantial increases in the value of the farm crop could have been gotten in all years by such discrimination of pricing between domestic and world outlets. In some years, the value of sales in both markets would have been increased.26/

The data in Table 17 are based upon the estimate that, on the average, an increase in domestic sales of 1,000,000 sacks--with no change in any other price determinant--was associated with a decrease in the farm price of 15 cents per hundredweight, rough basis. In Table 18, the impact of the same type of multiple pricing is appraised with the assumption that a change of 1,000,000 sacks on the domestic market would have been associated with a change in the opposite direction of only 13.3 cents per hundredweight in farm price. The estimated gains in Table 18 may be taken as the minimum impact of multiple pricing upon farm receipts.

The above calculations may be affected by the large increase in the percentage of United States exports to net world exports. World price might, in fact, be affected by substantial increases in the export volume of the United States.27/ However, it is entirely reasonable to assume that for the indefinite future, elasticities of world demand for relevant quantities of United States exports will be significantly higher than elasticities of the domestic-territorial demand. In this case, multiple pricing will still yield a higher total return in farm value than would the equalization of world and domestic prices. Similarly, no subsidy would be required. There would be no need to dump supplies at lower than world prices.

The maximum farm returns adjustments through multiple pricing are contrasted with the price-equalization adjustments in the case in which changes in United States exports would affect world price in Figure 26. The quantity OO' represents total annual United States farm supply. The function D_{DT} is the on-farm demand in domestic-territorial outlets read to the right from O. The function D_W is the world demand reflected at the United States farm level and is read from O' to the left. With no multiple pricing plan, on-farm prices would be P_W in both outlets, with OQ_{DT} sold in domestic-territorial channels and $O'Q_{DT}$ sold in export outlets. With a multiple pricing system, maximum

- -

26/ In such years, the demand elasticity on domestic markets was extremely low. In all years, net returns from all outlets taken together would have been significantly larger from a discriminatory price system which involved no effort to sell below the world price and which required no subsidy on export volume.

27/ United States exports have comprised the following percentages of net world exports: 1936-1940, 1.08; 1949, 12.72; 1950, 11.64; 1951, 9.08; and 1952, 15.59. At least during interwar years, world demand elasticity appears to have been low. The percentage of world production originating in the United States is still less than 1.5. World exports fell from about 20,000,000,000 pounds prewar to 9,000,000,000 in 1949 and recovered to 11,000,000,000 in 1951. Asiatic exports fell from 18,500,000,000 pounds prewar to about 6,000,000,000 in 1949.

TABLE 18

United States Rice: Differences in Farm Price and Value of Crop With and Without Maximum Return Discrimination of Domestic and Export Markets, Rough Basis, 1921-1952, Excluding 1942-1945, Inclusive, and 1951[a]

Year	Total supply minus exports	All exports	Total supply	Average annual farm price	Value: total supply minus exports	Value: exports	Value: total supply	Adjusted United States price	Differences in value of: Total supply minus exports	Differences in value of: Exports	Differences in value of: Total supply
1	2	3	4	5	6	7	8	9	10	11	12
	1,000 hundredweight			dollars per hundredweight	1,000 dollars						
1921	13,784	6,522	20,306	2.18	30,049	14,218	44,267	3.09	- 8,753	15,025	6,272
1922	14,762	6,005	20,767	2.19	32,329	13,151	45,480	3.17	- 8,931	16,164	7,233
1923	13,187	3,690	16,877	2.49	32,836	9,188	42,024	3.36	-10,680	16,417	5,737
1924	14,127	1,815	15,942	2.99	42,240	5,427	47,667	3.93	-14,478	21,118	6,640
1925	16,367	780	17,147	3.30	54,011	2,574	56,585	4.39	-18,083	27,004	8,921
1926	16,373	4,931	21,304	2.51	41,096	12,377	53,473	3.60	-11,626	20,549	8,923
1927	17,466	5,018	22,484	2.02	35,281	10,136	45,417	3.18	- 7,810	17,641	10,131
1928	15,317	6,362	21,679	2.02	30,940	12,851	43,791	3.04	- 7,660	15,471	7,811
1929	14,390	4,690	19,080	2.22	31,946	10,412	42,358	3.17	- 9,138	15,973	6,835
1930	16,995	4,552	21,547	1.74	29,571	7,920	37,491	2.87	- 5,182	14,785	9,603
1931	17,444	4,450	21,894	1.08	18,840	4,806	23,646	2.24	697	9,420	10,117
1932	19,081	2,879	21,960	0.93	17,745	2,677	20,422	2.20	3,243	8,874	12,117
1933	18,111	1,633	19,744	1.73	31,332	2,825	34,157	2.94	- 4,707	15,665	10,958
1934	19,752	1,988	21,740	1.75	34,566	3,479	38,045	3.07	- 4,247	17,283	13,036
1935	18,215	1,369	19,584	1.60	29,144	2,190	31,334	2.81	- 3,551	14,572	11,021
1936	25,884	840	26,724	1.85	47,885	1,554	49,439	3.57	- 1,682	23,943	22,261
1937	23,347	5,024	28,371	1.46	34,087	7,335	41,422	3.02	1,168	17,043	18,211
1938	21,545	5,562	27,107	1.42	30,594	7,898	38,492	2.86	214	15,298	15,512
1939	23,879	4,936	28,815	1.62	38,684	7,996	46,680	3.21	- 357	19,342	18,985
1940	22,665	6,371	29,036	1.80	40,797	11,468	52,265	3.30	- 3,401	20,399	16,998
1941	18,633	7,384	26,017	3.01	56,085	22,226	78,311	4.25	-16,492	28,044	11,552

(Continued on next page.)

TABLE 18

Table 18 continued.

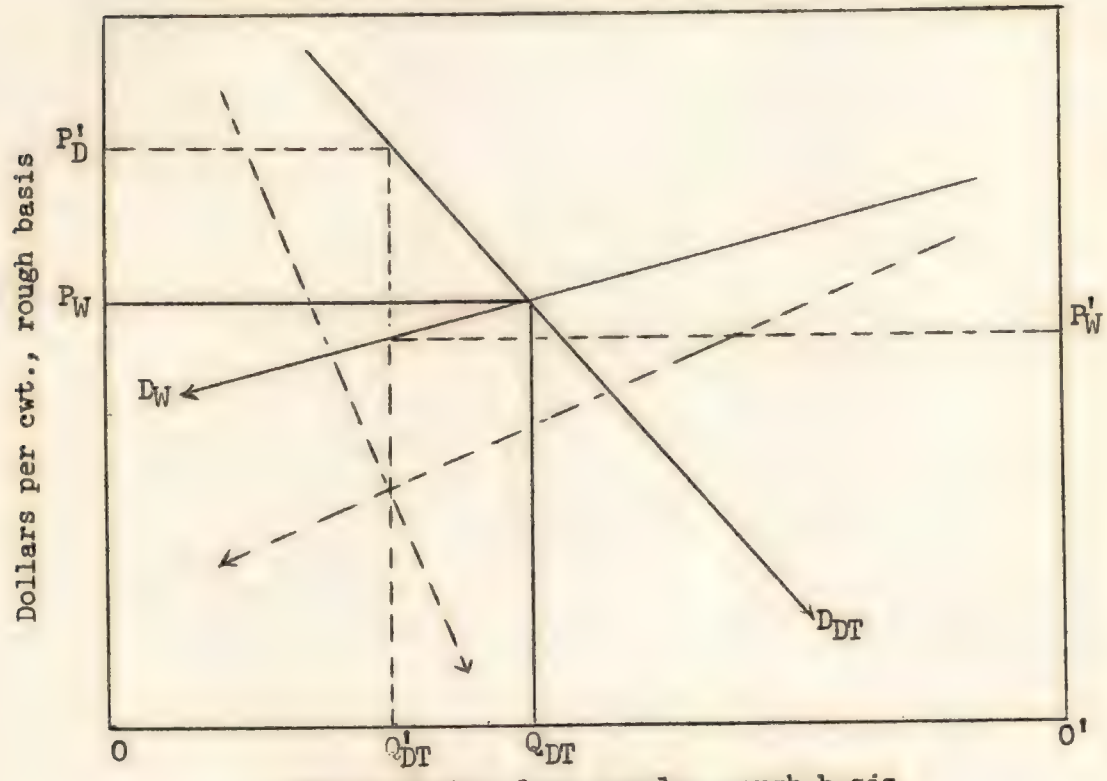
Year	Total supply minus exports	All exports	Total supply	Average annual farm price	Value: total supply minus exports	Value: exports	Value: total supply	Adjusted United States price	Differences in value of: Total supply minus exports	Exports	Total supply
1	2	3	4	5	6	7	8	9	10	11	12
	1,000 hundredweight			dollars per hundredweight	1,000 dollars						
1946	19,900	13,938	33,838	5.00	99,500	69,690	169,190	6.33	-36,516	129,750	13,234
1947	21,316	14,692	36,008	5.97	127,257	87,711	214,968	7.39	-48,494	63,629	15,135
1948	24,584	14,184	38,768	4.88	119,970	69,218	189,188	6.52	-39,826	59,985	20,159
1949	26,321	15,608	41,929	4.10	107,916	63,993	171,909	5.85	-30,930	53,960	23,030
1950	26,452	15,239	41,691	5.09	134,641	77,567	212,208	6.85	-44,043	67,320	23,277
1952	23,431	26,861	50,292	6.05	141,758	162,509	304,267	7.61	-52,599	70,876	18,277

a/ b_{PQ} = -.000133.

returns to farmers would be achieved with the following adjustments: (1) reduction of domestic-territorial sales to OQ'_{DT}, (2) increase of domestic-territorial price to P'_D, (3) increase of export sales to $O'Q'_{DT}$, and (4) decrease in world price reflected on the United States farm to P'_W. The general principles are quite the same as those outlined with the assumptions of Figure 25. Administration would probably be more difficult.

FIGURE 26

United States Rice: Distribution of Farm Supply Between Domestic-Territorial and Export Outlets, Assuming World Price is Affected by United States Exports



Thus, there seems to be no doubt that multiple-pricing plans could avoid diversion of rice to government storage in the event of a decrease in world prices. The present support system would almost certainly lead to heavy diversion and to imposition of production controls. The third alternative, absence of any support, would probably lead to higher long-run returns to American producers than would the second.

However, the administration has apparently firmly rejected multiple-pricing proposals as alternatives for the present relatively rigid system of supporting farm prices of rice. Almost certainly, enabling legislation for alternative methods will not be enacted in the present session of Congress. Fear of litigation, possible necessity to use the processing tax methods of the early Agricultural Adjustment Administration programs, and adverse reaction of foreign nations to claims of surplus dumping are cited as the reasons for this decision. General policy seems to have been dictated by one major criterion:

to return as rapidly as possible to the support systems specified in the Agricultural Acts of 1948 and 1949 by which heavy surpluses might be avoided through devices applicable to major crops and by methods the legality and administrative feasibility of which are tested by experience. It may be recognized that the absence of heavy surpluses in government hands and the nature of the export market would relieve rice of some of the criticisms associated with multiple-pricing plans or other diversion schemes applied to the larger commodities. However, it seems to have been decided that a general price-support policy cannot well be fashioned by using different support methods for different commodities. Applicability of multiple pricing or other diversion plans to rice would probably not now be considered despite the fact that farm incomes might thereby be protected and large surpluses be avoided. Approval of such programs for rice might require extension to other commodities for which such methods are less suited.

Thus, the prospect for 1954 and probably 1955 is for continuation of high-level support for an industry dependent upon export outlets; some softening of world prices which may reduce the reflection of such prices at the United States farm level below the support-price level; and consequent diversion to storage with the possibility of later imposition of marketing quotas.

The rice industry has a long-run potential for exportation to Asia--at world prices which may be lower than high-level support prices but still profitable to the bulk of the industry. Inquiry might well be made into possibilities of adjusting the support system. Assuming that domestic price policy can be adjusted to avoid interference with exports, inquiry might also be made into possible methods to maintain dollar exchange in importing nations.